Soybean Digest

O. H. Acom, ASA director from Missouri. (See page 17)

Official Publication

AMERICAN SOYBEAN ASSOCIATION

VOLUME 9 • NUMBER 5 MARCH • 1949

All Your Eggs in One Basket?

"DOC" MacGEE SAYS: You can't afford to buy and use industrial solvents on a "hit or miss" basis. If you have suppliers of questionable reliability . . . if there is no sure basis of uniformity in your solvents . . . if your solvents are of doubtful purity and have foreign tastes and odors that could be detrimental to your product . . . or if you aren't sure of receiving skilled technical assistance when you need it . . . it's time for you to "put all your eggs in one basket!"

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THE *Soybean Digest*

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HUDSON, IOWA

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IN THIS ISSUE

EDITOR'S DESK

EXPORT CONTROLS REMOVED

As a result of combined efforts of representatives of the cottonseed, livestock and soybean groups and the stir which was created by appearance of their representatives before the banking and currency committees, an amendment was written into the Export Control Act which places the determination of surpluses entirely in the hands of the Secretary of Agriculture. At the same time the Department of Commerce removed all allocations on fats and oils both edible and inedible, thus opening up foreign markets for soybeans and soybean products. The removal of allocations came so late that funds had been tagged, purchases planned, and shipments outlined. Immediate reaction of the markets was not as vigorous as might have been expected because of these factors. But over a period of time there will be very definite market reactions to the free flow of fats and oils and oilseed crops to those parts of the world where they are in shortage.

Limiting factor, of course, will be the supply of dollar exchange with which foreign countries may make purchases in our domestic markets. There is possibility that ECA funds may be made available in some cases. In others readjustments are being made on purchase schedules to permit greater fats and oils purchases.

But through it all agriculture is being outsold throughout the ECA countries by representatives of industry. Money is going for equipment and manufactured goods because industry has salesmen beating pathways to purchasers' doors. Agriculture sits back and waits for business to come.

The soybean industry owes a debt of gratitude to the National Cottonseed Crushers Association, the American Meat Institute, the National Renderers Association and other fats and oils groups for their efforts on removal of agricultural commodities from export controls. Likewise to Senator Fulbright of Aksansas and Congressman Talle of Iowa and Congressman Brown of Georgia for their intense interest in our efforts and their cooperation in introducing the amendment which passed both houses of Congress and became law.

IT'S A LEGISLATIVE YEAR

Representatives of the American Soybean Association appeared at the hearings held by the committee on agriculture of the House of Representatives on March 1-4 to defend the margarine market for soybean oil. Vice-president John Evans, J. W. Calland, and C. M. Gregory appeared. Hearings this year were held to a short period, with no attempt to schedule all persons or groups asking to be heard. Six representatives of the American Soybean Association spent the greater part of the week in Washington contacting members of Congress from the Midwest area. At this writing it is impossible to say what the committee will do on margarine legislation, but it is anticipated that a margarine bill will be reported favorably by the agricultural committee for the first time in the history of the control of such legislation.

In anticipation of a change in the federal law, state laws are being changed right and left. During January and February five states have made changes which in most cases consisted of removal of color bans or taxes. Tennessee, taking the lead, removed the tax on margarine made from fats and oils produced in the United States. This is in conformity to the resolutions adopted by ASA continuously since 1941. The National Cotton Council should be commended on the successful part which they and their members played in the Tennessee law change.

Representatives of ASA have appeared before legislative committees in Ohio, North Carolina and Kansas during the past month to outline the stake of soybean growers in the bills being considered in their legislatures.

FARM BUYING POWER IS KEY TO PROSPERITY

Much of the administration in Washington has not yet discovered that the farm income of the great Midwest area—the Soybelt—has shrunk considerably during the past year, when measured in terms of buying power. Credit goes to our good friend Joe Johnson of Champaign, Ill., a former president of ASA, for pointing out that in January 1948 it took *890* bushels of corn to buy a popular make farm tractor. In January 1949 it took *2,190* bushels of corn to buy the same tractor. All the way down the line, through soybeans, animal products, other grains, the shrinkage has been the same.

Maybe we are not headed for a recession—maybe it is that period of adjustment we have been talking about. So far the adjusting has been done by the farmer—and most of it has been in tightening his belt. The things he buys must come down accordingly—farm income must be boosted back upward—or we're headed for a bust which will really be a bust.

1949 SOYBEAN BLUE BOOK IS NOW IN PRESS

The 1949 edition of the *Soybean Blue Book* is now in press and should be ready to mail within the next few days. Copies will go to all paid-up members of the American Soybean Association.

The *Blue Book* was first issued in 1947, and found immediate acceptance by the industry as a much-needed source of statistical information on soybeans and the firms that work with them, or serve the industry in other ways.

With generous advertising support, the 1949 *Blue Book* will be larger than the two that have preceded it, with more general information and more complete listings of firms serving the industry.

We hope you will find your copy useful and keep it on hand for ready reference until the 1950 edition appears.

SOYBEANS DESERVE REAL CONSIDERATION

Congress is now in the midst of considering the long-term agricultural program.

Soybeans should receive consideration as plans are made. That consideration should include either classification as a basic crop under the price support program or some form of treatment which will assure support prices on comparable levels.

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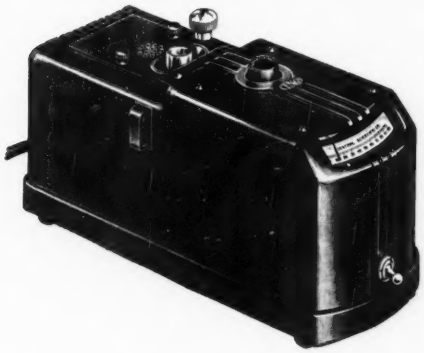

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ACTIVITIES OF YOUR ASSOCIATION

GROWERS STAGE SUCCESSFUL MEETINGS

"God helps those who help themselves," could well have been the theme of three "grass-roots" meetings sponsored by the American Soybean Association in Ohio in February. Soybean growers were told that it was time for them to rise on their hind feet and protect their own interests—nobody else would do it for them.

Between 500 and 600 farmers took part in the meetings which were held at Bowling Green, Van Wert and Kenton. Speakers were officials and employees of the American Soybean Association and other soybean experts.

Local chairmen at the meetings were: Earl Danielson, manager of the Pemberville Elevator Association, Pemberville, Ohio, at Bowling Green; Gus Holland, Holland Pioneer Mills, Ohio City, Ohio, at Van Wert; and Calvin Heilman, Kenton, at Kenton.

Holland was chairman of the Van Wert Roundup committee that was in charge of the Van Wert meeting.

—Soybean Digest photo

Earl Danielson presides at Bowling Green, Ohio meeting.

The committee has put on highly successful soybean meetings for years and this was no exception.

David G. Wing, former ASA president, Mechanicsburg, attended the Kenton meeting and introduced the speakers.

The price of soybeans was set too low during the war by the government because soybean prices have been too low historically, Ersel Walley, president of the American Soybean Association, Fort Wayne, Ind., told the groups. "There never has been a time when soybeans were not worth at least double the price of corn on the basis of their intrinsic value," he pointed out.

Walley said that soybeans contain four times as much fat, four times as much protein and almost four times as many minerals as corn.

Growers at the three meetings were polled on the question of what is a fair relative price for soybeans. The majority felt that it should be at least two to two and one-half times the price of corn if present acreage is to be held up. (With corn supported at $1.40, soybeans should have a support price of $2.80, at least.)

Growers themselves will have to promote markets for soybeans if they are to realize their true price value, said Paul C. Hughes, field service director of the American Soybean Association, Hudson, Iowa. He said that producers cannot rely on processors, the government or other groups to do the job for them.

Hughes explained the promotional program of the Association which has been set up during the past year. Eventually 1/5-cent per bushel on the soybean crop will be collected from growers in all leading soybean states through grain elevators on a voluntary basis, he said.

Growers at the Van Wert meeting unanimously passed a resolution placing themselves squarely behind the domestic fats requirement in the margarine bills pending before the Ohio legislature. They asked the legislature to remove legal restrictions on the manufacture and sale of yellow margarine provided the margarine is made from U. S. farm products.

Earlier, Geo. M. Strayer, ASA secretary-treasurer, said cheap for-

A GOOD PLANT STIMULANT

We're definitely naming the little guy in April. See page 62 for names that have been suggested, then send in yours—today.

BURDEN'S *Smart idea!*

200 portholes "in the ocean floor" at Marine Studios attract 30,000 monthly!

GIANT SHARKS, tarpon, porpoises, rays and tropical fish live together in two huge tanks at "the world's only oceanarium" at Marineland, Florida. Spectators view this colorful undersea world through more than 200 observation portholes placed in the sides and bottom of the 700,000-gallon capacity tanks. Because violent deaths are a frequent occurrence in the sea world, a special fleet of boats searches for new specimens continually. Douglas Burden, president of Marine Studios, says that a fleet of trucks is required to service boats, tanks, and concessions.

"BIG FEATURE OF THE OCEANARIUM," says Douglas Burden, "is the fact that it gives you an opportunity to see the dramatic and mysterious life of the undersea world approximately as it exists in the open sea. Marine life is not segregated by species, but placed together in the giant tanks containing a coral reef, sunken ship, etc."

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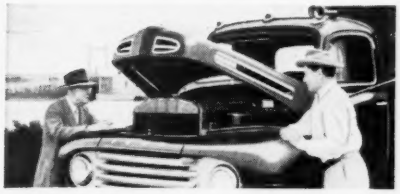
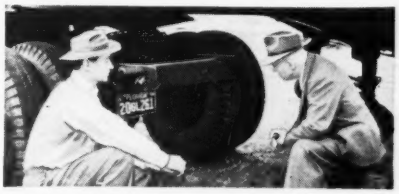


"110 GALLONS per minute, handled by the Ford cooling system, sounds small alongside 8,000,000 gallons per day for your tanks," says Barnes, "but it's one reason why this 145-h.p. V-8 is tops in performance."



"WE'RE THOROUGHLY SOLD on this extra heavy-duty 2-speed axle," says Burden. "It gives us the speed and power we want . . . when we want it. Gas mileage in high axle range is amazingly good for this size truck."

BURDEN'S *Smart bet!*

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—Soybean Digest photo

Secretary George Strayer scores a point at Van Wert.

eign oils will be a real threat to U. S. agriculture if the margarine repeal bills now pending before the various state legislatures are passed in such form as to permit their use in yellow margarine manufacture.

Strayer said reliable surveys taken by the Association indicate without question that U. S. consumers demand yellow margarine free of tax, and that the national Congress and many state legislatures will repeal present margarine laws regardless of what farmers may think of repeal.

"The color issue is not important," Strayer said. "The real issue is whether U. S. farmers are going to sit idly by and watch coconut and palm oils come in from the Pacific and take over the market for soybean oil, cottonseed oil, lard and butter."

E. F. "Soybean" Johnson, assistant manager of Delphos Grain & Soya Products Co., Delphos, Ohio, charged it was foreign oils now coming into U. S. markets at the rate of 2 billion pounds annually, not a surplus of lard, that caused the recent break in grain and soybean markets.

Johnson said the U. S. has never had a surplus of domestic fats and oils even though farmers doubled production during the war. He said the foreign oil price has done more to set the price of U. S. oils than any other one factor, except for a short period during the war.

The big flow of foreign oils comes from such crops as coconuts, babassu and palms that are produced with little or no labor, said Johnson. "U. S. producers of soybeans with heavy investments and high priced labor can't meet this competition." Johnson has been growing soybeans in Ohio for 38 years.

Ward Calland, National Soybean Crop Improvement Council, Fort Wayne, Ind., spoke on the subject, "Soybeans—Soil Builder or Soil Robber." Kent Pellett, managing editor of the *Soybean Digest*, Hudson, Iowa, gave a talk on the *Digest*.

Margarine Hearings

Secretary Strayer testified before the commerce and industry committees of both houses of the Ohio legislature in support of the domestic fats provision of the pending margarine repeal bills. He pointed out that a large part of U. S. margarine was made from foreign oils before the war, and said that allowing colored margarine to be made from foreign oils would open all American oils to destructive competition from abroad. (S. 6, as introduced originally, would permit the manufacture and sale of colored margarine but ban the use of foreign oils. It has been amended to make it a complete repeal bill. The domestic fats provision still stands in the House bill.)

In attendance at the margarine hearings in Washington that opened March 1 were: Ward Calland, Soybean Research Council, Decatur, Ind.; J. W. Evans, Easthome Farm, Montevideo, Minn.; C. M. Gregory, Farmers Cooperative Co., Dike, Iowa; Albert Dimond, Lovington, Ill.; Leroy Pike, Illinois director American Soybean Association, Pontiac, Ill.; and Ersel Walley, president American Soybean Association, Fort Wayne, Ind.

The first three men testified before the House agricultural committee March 3.

Paul C. Hughes, field service director of the American Soybean Association, was in Raleigh, N. C., on contact work the last week in February. A margarine repeal bill is pending before the North Carolina legislature.

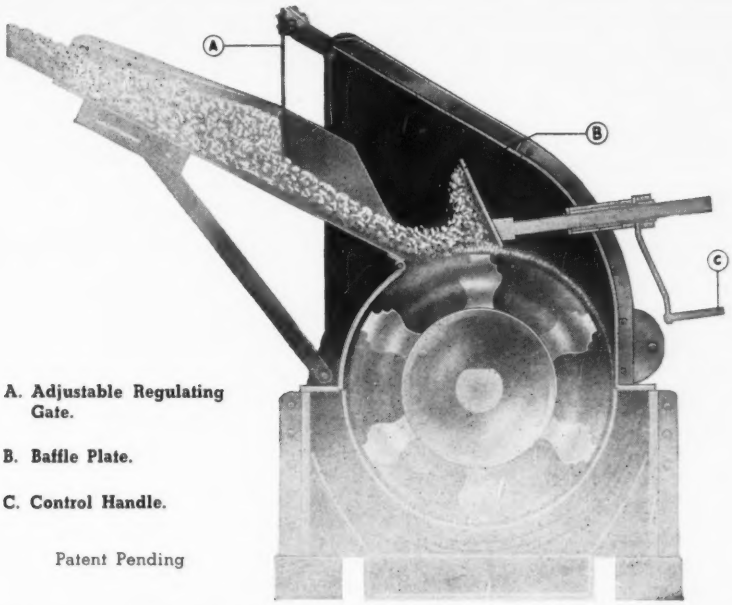
GROWERS

SEED TREATMENT RESULTS

Spectacular increases — as much as 103 percent—in stand have resulted from seed treatment of low-vitality soybean seed, reports S. B. Fenne, plant pathologist for the Virginia Agricultural Extension Service.

However, in other cases where seed of high quality and high germination was planted, very little difference was noted between treated and untreated seed, he said.

The observations were made at a series of demonstrations set up in Virginia to determine how well seed treatment materials can control seedling diseases. The 103 percent in-



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Fine threshed grain, ear corn, baled hay, as well as other materials, may be fed into a mill equipped with the control. Once in the mill, the material is spread over the hammers in an even layer which causes uniform hammer wear.

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Material fed into a JAY BEE Mill equipped with the "Constant Feed Control" is held IN SUSPENSION over the hammers by the baffle plate until the desired reduction is made, at which time the particles pass beneath the baffle and over the hammers to the screen.

There is no grinding against a rubbing plate or the screen. The "Constant Feed Control" confines grinding to the area indicated by the illustration above. Still, with 7/16-in. clearance between hammers and screen, many materials may be ground to powder fineness, cooler, and in greater quantities than ever before.

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crease in stand occurred on the farm of E. J. Hofmeyer, James City County.

"This lesson should be remembered," Fenne said, "when planting time comes again next spring."

Here is the procedure for seed treatment as outlined by Fenne:

Mix 2 ounces of a chemical such as Arasan or Spergon dust to each bushel of soybean seed, preferably in a revolving mixer or a grain treater. The seed may be treated several weeks before planting.

As chemically-treated seed are poisonous, keep them away from animals. Do not use surplus treated seed for livestock feed.

While Fenne recommends planting only good, clean seed of high quality and high germination, he says that if soybeans must be planted that have been damaged in any way or have a lowered gemination, they should be treated.

Interplanted Soybeans

A good way to increase the yield of both corn and cotton in the Louisiana corn-cotton rotation is to interplant soybeans with corn and turn them under with the cornstalks. This is what Louisiana farmers are finding.

The Northeast Louisiana Experiment Station at St. Joseph, La., has been working on this for 11 years. Over this period interplanted soybeans have increased the yield of corn by 10 bushels per acre on the average. And they have doubled the cotton crop.

People at the Station planted soybeans in the row with the corn in the same operation, using a duplex hopper, a common practice in the section.

Purpose of the experiment was to find out:

1—The effect of interplanting soybeans on the yield of corn.

2—The benefit derived from soybeans so grown when both corn and beans were harvested and the stalks taken off.

3—The benefit derived from turning cornstalks and soybeans under.

Yield of corn grown alone was about equal to the yield of corn when interplanted with soybeans and the corn and beans taken off. Apparently the nitrogen fixed by the soybeans was all absorbed by the succeeding cotton crop, leaving no nitrogen to boost the corn yield.

But when the soybeans and corn stalks were turned under the average yield of corn was increased by 10 bushels.

Cotton yield was increased on the average 717.5 pounds from 956 pounds over the 11 years on the plots where cornstalks and soybeans were taken off. But when they were plowed under average cotton yield was increased 1019½ pounds.

No fertilizer was used on any of the plots.

"The increased yield of cotton following corn and beans may seem rather high but on our alluvial soils in this section nitrogen is our only plant food deficiency and for this reason we get an unusually large increase from growing legume plants," states C. B. Haddon of the Northeast Louisiana Station.

"It might be of interest that we obtained a somewhat larger yield of cotton from plots 4 and 5 (where cornstalks and soybeans were turned under) than some adjoining plots where cotton followed cotton each year and received an application annually of 500 pounds of nitrate of soda."

Illinois Results

Corn yields have been increased from 8 to 27 bushels an acre by University of Illinois agronomists by planting alternate double rows of corn and soybeans. The big advantage in the practice is that competition for plant food, moisture and sunlight is cut down.

One of the tests was made on the Babb farm in Champaign County. In this test, double rows of corn and soybeans were planted alternately in 1947. Rows were 40 inches apart. Corn was drilled at the rate of 13,500 plants to the acre. And no fertilizer was used. The yield was 85 bushels to the acre, 27 bushels higher than the test plot.

Before this practice can be recommended, however, more experimental work must be done. And harvesting problems must be worked out.

But A. L. Lang of the department of agronomy says there's every sign that this new method of planting corn will increase yields considerably.

Check Germination

Knowing the germination of soybean seed before planting this spring may mean the difference between a good crop and a failure resulting from a poor stand.

E. P. Sylwester, head of the Seed Testing Laboratory at Iowa State

For better stands and higher yields

ALWAYS PLANT SOYBEAN SEED TREATED WITH

Du Pont "Arasan"

Even the best soybean seed does better when it's treated with Du Pont "Arasan" seed disinfectant and protectant. "Arasan" helps to boost stands and yields because it protects your seed from decay, damping-off and many seed-borne diseases. This protection is especially effective when the seed coats are injured, or when the weather is bad for germination.

RESULTS SHOW IT PAYS

OHIO—At the Experiment Station, "Arasan" treatment gave 42.8% increase in soybean stands.
VIRGINIA—A spectacular increase in stand with low-vitality soybean seed was obtained with "Arasan" treatment according to an official Virginia Plant Pathology report.

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College, says that Iowa soybean growers are faced with the problem of getting a good stand with the second poorest soybean seed in the past 15 years. Germination tests run at the laboratory show that beans are not germinating as well as expected. Normally, 95 percent is considered good germination, but this year 85 percent is good, according to Sylwester.

Reason for the low germination is injured beans. Beans this year do not lack vitality as they did last year. There was a good growing season this year, but a very dry fall made beans extremely dry when harvested. The result is broken seed coats, broken seeds and injured embryos.

The situation will not be serious for the farmer who has soybean seed tested. Knowing what percentage of the beans will produce plants, the farmer can adjust the planting rate to insure getting a stand. But Sylwester emphasizes that you can't tell much about the seed until it is tested.

Hawkeye Adaptation

Hawkeye soybeans have produced another surprise, say Illinois College of Agriculture agronomists. It seems they're adapted farther south in Illinois than anyone had believed.

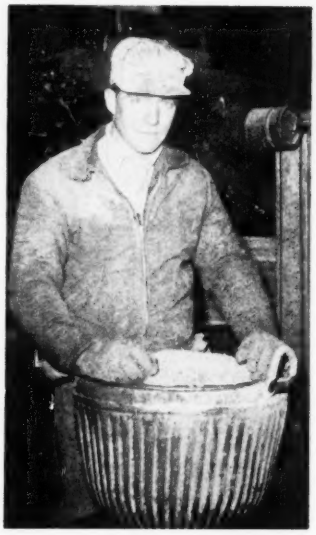
Hawkeye has produced the largest yield of any variety for the past 3 years in tests at the University's experimental farm at Champaign-Urbana, reports J. C. Hackleman, extension service agronomist.

In 1948, Hawkeye yielded 41 bushels, tops for 16 varieties tested. On the 2-year test, it averaged 33 bushels, best of 14 varieties grown both years. For the 3-year average, 1946-48, the Hawkeye yield was 35 bushels, again the largest for 11 varieties tested all 3 years. These figures were furnished by R. F. Fuelleman, University agronomist.

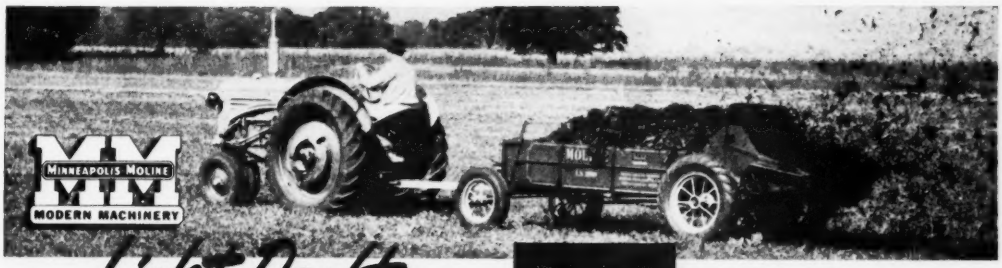
"I guess I'll have to stop saying Hawkeyes are adapted primarily to north central and northern Illinois," Hackleman said.

In addition, Hawkeye can profitably replace Lincoln on the northern edge of the Lincoln belt, where farmers are always gambling with Lincoln getting caught by frost.

IOWA CHAMP MORTENSON



This is Leo A. Mortenson, of Spencer, Iowa, Master Soybean Growers Contest winner for 1948. Mortenson averaged 49.55 bushels on 5 acres of Earlyanas. He raised 100 bushels of corn per acre on the same land in 1947. The year before that the field was in pasture for hogs and cattle, and in 1945, oats and clover. Mortenson applied 200 lbs. per acre of 0-20-0 fertilizer 3 years ago. The field was spring plowed, disced four times, harrowed four times, rolled two times after planting and cultivated three times with a conventional cultivator. The beans were planted in 40-inch rows.



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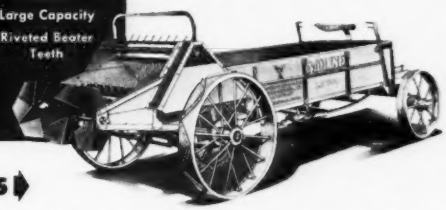

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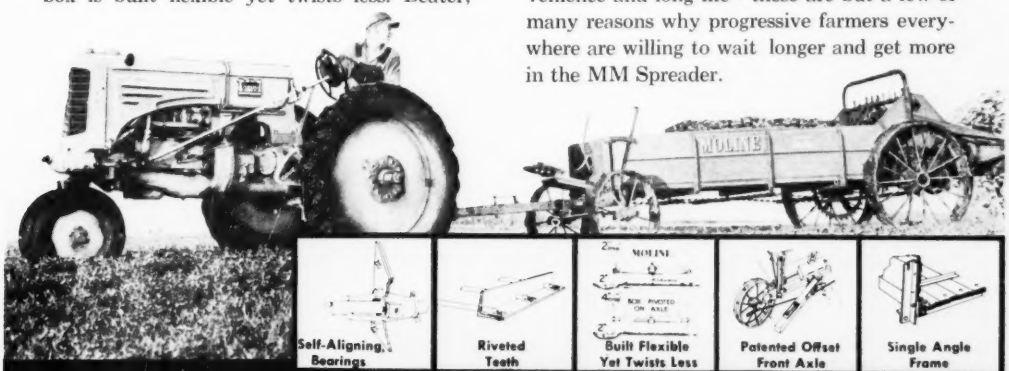
The MM Spreader box has steel angle sills and is designed so that weight of the load is carried by the full depth of the side boards. This reduces strain on sills and bottom and prevents bulging of side boards. The Spreader box is built flexible yet twists less. Beater, distributor and rear axle bearings are self aligning. Low loading height and forward tilting seat permit easy access for loading with carrier or tractor loader.

The "chisel-pointed" teeth of the double beater shred the manure and throw it against the wide, spiral type distributor that pulverizes and uniformly spreads it. Safety shield encloses the single, heavy-duty steel chain that drives both beaters. Pressure gun lubrication throughout reduces wear, helps assure lightest draft.

Quality construction, light draft, extra convenience and long life—these are but a few of many reasons why progressive farmers everywhere are willing to wait longer and get more in the MM Spreader.



MINNEAPOLIS - MOLINE

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Iowa Grower Meetings

Soybeans are no harder on the soil than other row crops and properly managed they contribute less to erosion than corn, Ward Calland of the Soybean Research Council, told Iowa soybean growers in five meetings the last week in February.

The meetings were held in Des Moines, Fort Dodge, Spencer, Waterloo and Cedar Rapids with a good attendance. They were sponsored by Iowa soybean processors. District winners of the Iowa Master Soybean Growers Contest for 1948 were recognized at some of the meetings.

Calland pointed out that Iowa now has 32 processing plants and that production is 20 times what it was 15 years ago, with soybeans the state's second most important crop.

C. R. Weber of the U. S. Regional Soybean Laboratory, Ames, Iowa, talked on "Production Practices Making for Higher Yields."

R. G. Houghtlin, president of the National Soybean Processors Association, presided at the meetings.

Here are Illinois winners of the Gulf, Mobile & Ohio Railroad's soybean yield contest awards together with officials of the Illinois Crop Improvement Association and the railroad. Left to right, J. C. Hackleman, extension agronomist, University of Illinois; Hugh P. Morrison, president of the Association; Aden A. Danielson, Tazewell County, first place winner; S. A. Robert, director of agriculture and forestry for the railroad; H. L. Stiegelmeier, McLean County, third place winner; and L. Parke Kerbaugh, McLean County, second place winner. The awards went to the high men in the Illinois 10-acre soybean growing contest in the 29 counties served by the railroad. They were made by Roberts at the annual Illinois Crop Improvement Association banquet February 2.

Hale Farm Results

Hale Ogden 2 outyielded all other soybean varieties in tests at Hale Seed Farms, Burdette, Ark., in 1948 and in the 1947-48 average, reports G. A. Hale, agronomist.

Per acre yield of Hale Ogden 2 in 1948 was 47.7 bushels. For the 2-year average it was 34.6.

Hale Ogden 12 was second in yield in 1948, 40.9 bushels; and Ogden was third with 40.2 bushels. But the position of the two was reversed in the 2-year average. Hale Ogden 12 averaging 29.2 bushels, and Ogden 30.1.

Other varieties tested by Hale and their 1948 yields: Dortchsov 2 39.2; 2-43-A 39.1; Burdette 19 38.6, Dortchsov 7 32.9; and Ralsoy 31.9.

Hale Ogden 2 is a selection from Ogden made by Hale in 1944. He says it is a better yielder than the original variety and has some resistance to shattering.

Cover Crops

The excellent soybean crop produced in 1948 on E. M. Kaylor's farm near Van Buren, Ark., reflects the soilbuilding value of a winter cover and green manure crop, reports *Mid-South Cotton News*.

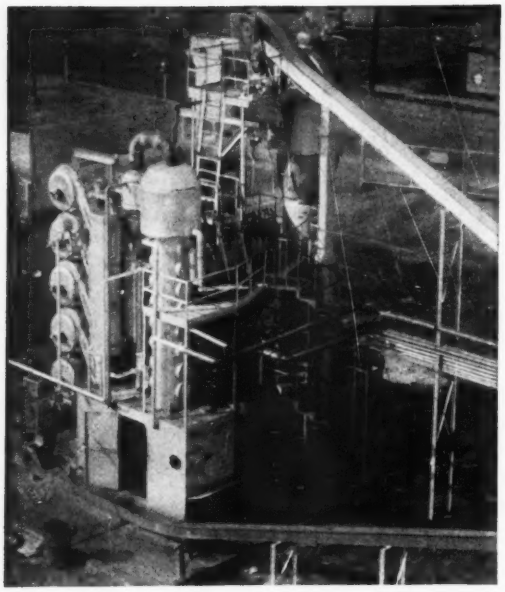
The land on which Kaylor produced the soybean crop was worn out 15 years ago. He bought it in 1946 and in the fall of that year fertilized the field with 350 pounds of superphosphate per acre and planted a mixture of wheat and vetch. This cover crop was turned under green in the spring and followed with peas.

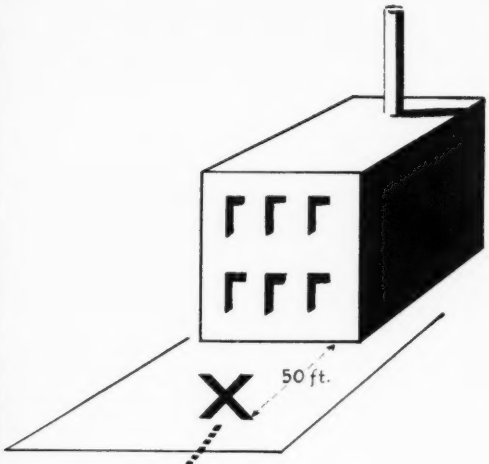
Late in the summer of 1947 the peas were turned under. Then each acre received 2 tons of agricultural limestone and the field was planted to vetch in the fall. Last spring the vetch was turned under and the field planted to soybeans.

A strong believer in Arkansas' "cover of green" program, Kaylor thinks that every bare acre should be covered with some useful crop the year around—especially during the winter.

Arkansas Leader

Dale Evans, Emmett, Ark., named by extension leaders as one of the top colored farmers of the South for 1948, is a soybean grower who carries on diversified farming. Last year his production record showed 500 bushels of soybeans, 25 tons of hay, 250 bushels of sweet potatoes, 12 bales of cotton, a year-round garden, hogs, poultry, and milk cows.





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EXPELLERS AND SOLVENT EXTRACTION EQUIPMENT

Missouri's "Mr. Soybean"

O. H. Acom of the O. H. Acom Farms, Inc., Wardell, is Missouri's member of the American Soybean Association board of directors. He is known as the "Judge" to everybody in southeast Missouri, as he was at one time County Judge.

The *St. Louis Globe-Democrat* recently named him "Mr. Cotton", for his cotton operations are among the largest in Missouri. The paper might also have named him "Mr. Soybean." His soybean operations are also among the largest in Missouri and equal to cotton. The Acom Farms grow large acres of each annually.

O. H. ACOM

Soybeans are the newer crop with Mr. Acom. His big acreage puts him in both commercial production and seed. Both have come into being in the last half-dozen years.

His interest in soybeans may not be too surprising—entirely aside from the fact that soybeans are now southeast Missouri's second crop. Judge Acom hails from the vicinity of Decatur, Ill., long claimant of the title, "World's Soybean Capital." His first experience with soybeans was in 1910 when he planted 1 bushel of green-colored beans, that he received from the University of Illinois, for experimental purposes.

In 1913 he moved to southeast Texas where he carried on sizeable rice farm operations, having at one time operated two irrigation plants in his rice operations as well as large acreage under commercial canal. In 1927 he moved his operations to southeast Missouri where he engaged in cotton and timber business for a number of years. Gradually he acquired a large acreage of undeveloped land which he cleared and put into cultivation after building roads and drainage ditches. Now his operations cover about 25,000 acres and include the two towns of Swift and Netherlands, Mo., which are located on the main line of the Frisco Railroad between Memphis and St. Louis. He has gins located at Netherlands and Wardell and a bean elevator at Swift.

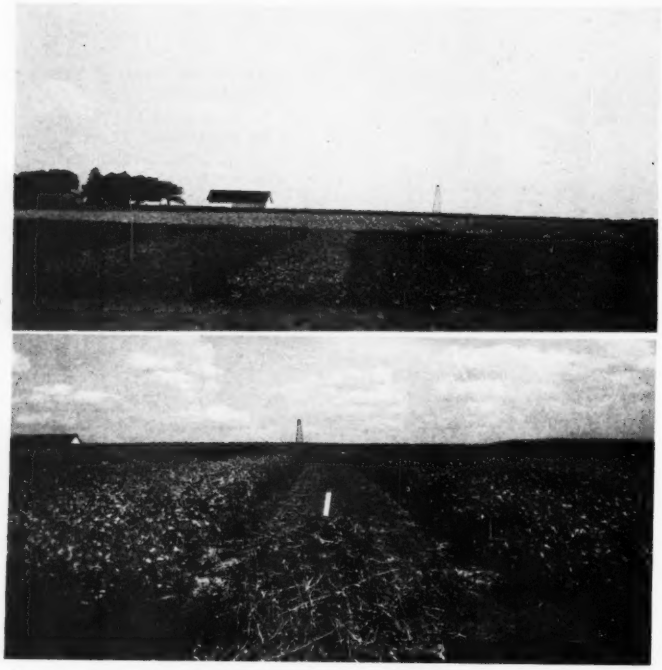
The O. H. Acom Farms are located in the heart of one of the world's heaviest cotton-producing areas. Pemiscot County enjoys the highest per acre yield of lint cotton of any other county in the Cotton Belt except the newly developed cotton territory in the far West where they practice irrigation. It is not uncommon to average a bale and a half of lint cotton and 45 bushels of soybeans per acre in southeast Missouri. Pemiscot County has entered the million bushel class of soybean counties in the nation.

Mr. Acom is also a director of the Little River Drainage District, one of the largest drainage developments ever undertaken without state or federal aid. The cost of this project was over 13 million dollars and has converted the swamplands of southeast Missouri into one of the richest farming spots.

He has been selected as one of five men to act as trustee of any endowment for the Boy Scouts of this district. He has also acted as president of Wardell's Consolidated School District No. 3 of Pemiscot County, for 20 years. This is one of the outstanding school consolidations in the state and has an enrollment of some eighteen hundred. Mr. Acom is also a charter member of the Rotary Club of Wardell, which has enjoyed 4 years of 100 percent attendance.

Mr. Acom's latest venture is organizing an agriculture research department with Heartsill Banks as manager. Banks is known to the soybean world as a former director of the Soybean Association and an originator of the Ralsoy variety. Having served as director of the Rice Experiment Station at Stuttgart, Ark., for 11 years and with experience in extension work and commercial soybean promotion there is a good prospect for many research developments that will effect not only Mr. Acom but the entire territory. Mr. Banks comes to the Acom organization directly from 2 years' tour of duty with the United States Military Government in Korea where he had the opportunity to study the agriculture of both Korea and Japan.

Mr. Acom has the able assistance in his operations of Glenn Petersen and Henry Acom of Wardell and W. E. Smith of Caruthersville.



At top the center, light-colored plot is Monroe. Left of the Monroe plot is Earlyana, at right is Hawkeye. In the bottom picture you see the same plots with Monroe harvested. Earlyana is almost ready to harvest and Hawkeye is beginning to turn.

MONROE

A Pre-Wheat Variety for Northern Ohio

By LEWIS C. SABOE[1]

Reprint from Special Circular 79, Ohio Agricultural Experiment Station

Those who have been looking for an early maturing variety of soybeans that will also stand satisfactorily for combining should be pleased with the new Monroe soybean. Monroe soybeans mature early enough in northern Ohio to permit timely seeding of winter wheat. This will make it much easier to fit the soybean crop into present rotations. After 7 years testing at several locations each year in Ohio the following comparisons can be made:

1. It is 5 days earlier than Earlyana which is our earliest recommended variety at present.

2. It stands better than Earlyana but not as well as Richland.

3. It is very similar to Earlyana in height, yield, oil content and protein content.

4. It is 4 to 5 inches taller than Richland, matures about 10 days earlier and yields as well.

Although the Monroe variety does not possess all desirable qualities that an early variety should have, it is enough better than existing early varieties to warrant extensive use. Acreage will be limited for a couple of years until the seed supply is larger.

If You Want Seed for 1950

The supply of Monroe soybean seed for 1949 planting was allotted as of February 20. All of the allotted seed must be planted for the production of certified seed in 1949.

The Ohio Seed Improvement Association, H & F Building, Ohio State University, Columbus 10, Ohio, will have lists of the 1949 certified Monroe soybean growers available on request about August 15. From this list you will be able to locate seed producers near your home in time to see the Monroe soybean in the field before you order your seed for 1950 planting.

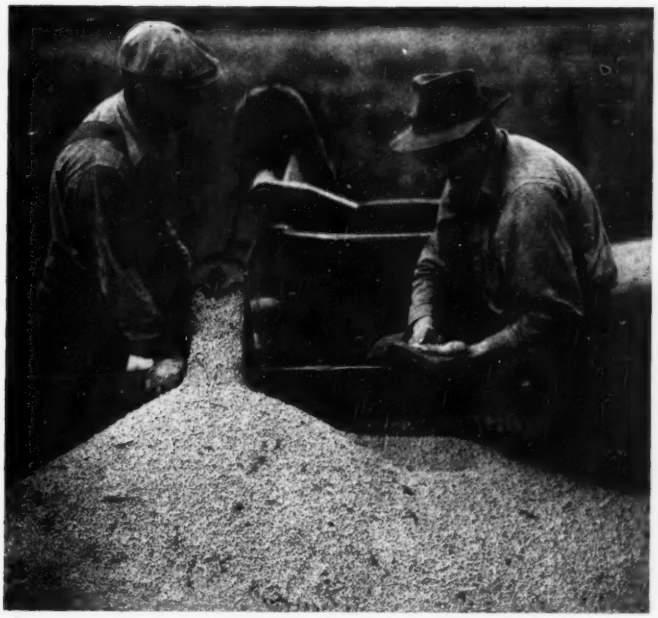
How Developed

Our crop varieties come from three general sources—viz: introduction, selection and hybridization. Monroe soybeans were developed by hybridization. In 1937 the varieties Mukden and Mandarin were crossed at Urbana, Ill. In 1940 bulked seed from this cross was received in Ohio. This seed was space planted at Strongsville. Individual plant selections were made from this material and grown as plant rows. Promising plant rows were first yield tested in 1942.

Testing of this strain and selections from it have been continued since. Single plant selections were made in 1944 to start a pure seed increase program. The seed from these selected plants has been increased until the present. Approximately 1,500 bushels of Monroe soybeans are available for seed producers in 1949.

The Monroe soybeans were developed cooperatively by the Ohio Agricultural Experiment Station,

[1]Associate Agronomist, Division of Forage Crops and Diseases, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, U. S. Dept. of Agriculture, and assistant in agronomy, Ohio Agricultural Experiment Station.



Ed (left) and Art Schlessman, Avery, Erie County, Ohio, examine the seed of an increase field of Monroes coming from the combine. They were planted in 40-inch rows and turned out 25 bu. per A.

and the U. S. Regional Soybean Laboratory[2]. The states of Michigan, North Dakota, Indiana, New York, Wisconsin, Minnesota, Iowa, South Dakota and Illinois have all aided in evaluating this strain. During the testing years it has been known as H5.

Not until 1951, which is 14 years after the original cross was made, will there be adequate seed of Monroe soybeans.

[2]The U. S. Regional Soybean Laboratory is a cooperative organization participated in by the Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration of the U. S. Department of Agriculture and by 24 state agricultural experiment stations.

SUMMARY OF SIX YEARS DATA[1] COMPARING THE IMPORTANT AGRONOMIC AND CHEMICAL CHARACTERISTICS OF EARLYANA AND MONROE SOYBEAN VARIETIES

Ohio Data 1942-1947 Inclusive. 46 Tests, 9 Locations

	No. of Tests	Yield in Bu/A (E)	Yield in Bu/A (M)	Maturity Index[2] E	Maturity Index[2] M	Lodging Index[3] E	Lodging Index[3] M	Height in Inches E	Height in Inches M	% Protein[4] E	% Protein[4] M	% Oil[4] E	% Oil[4] M
1942	2	33.8	34.8	+6	0	2.5	1.2	37	34	43.9	41.2	20.1	19.8
1943	2	31.5	31.5	+7	0	3.8	2.8	38	38	43.8	43.3	19.7	19.8
1944	7	18.9	16.5	+10	0	1.8	1.2	26	25	43.6	43.9	20.2	20.1
1945	19	24.2	27.7	+2	0	3.2	1.6	33	34	43.8	43.1	18.9	19.0
1946	9	25.7	24.6	+2	0	2.2	1.6	30	30	41.0	42.6	20.1	19.4
1947	16	29.1	30.0	+3	0	3.0	2.4	32	36	43.8	44.1	20.0	20.1
1942-47[5]		26.1	26.7	+4	0	2.7	1.8	31	33	43.2	43.4	19.8	19.7

Data from North Dakota, Michigan, Wisconsin, Minnesota, Indiana, South Dakota, Iowa, New York, Illinois. 1943-1947 Inclusive, 42 Tests, 14 Different Locations

Ill.	2	32.0	30.5	+6	0	3.2	2.6	39	39	42.4	42.4	21.0	21.0
Ind.	1	28.5	27.2	+5	0	2.4	1.7	37	36	43.2	43.7	20.2	19.5
Iowa	8	27.0	26.6	+2	0	2.4	1.7	36	36	42.4	43.2	19.8	19.6
Mich.	5	24.1	24.6	+5	0	1.4	1.0	32	34	42.4	43.0	19.6	19.1
Minn.	9	28.4	28.7	+7	0	3.5	2.5	38	40	42.1	42.2	19.6	19.5
N. Y.	1	26.5	26.6	—	—	—	—	26	26	42.4	41.3	18.4	18.5
N. Dak.	1	3.8[6]	10.7	—	—	—	—	39	40	37.1	38.1	17.1	17.8
S. Dak.	5	22.6	19.8	+5	0	2.8	2.1	30	28	41.0	41.6	19.6	19.6
Wisc.	10	23.7	24.1	+6	0	2.4	1.5	37	36	43.4	43.1	19.9	19.6
1943-47[5]		27.4	27.9	+5	0	2.6	1.8	33	33	43.1	42.8	19.9	19.7

E: Earlyana. M: Monroe.
[1]Data from states other than Ohio taken from Mimeographed Reports from U. S. Regional Soybean Laboratory for years indicated.
[2]Days later (+) than Monroe (M).
[3]1—All plants erect; 5—all plants prostrate.
[4]Moisture free basis.
[5]Weighted averages.
[6]The Fargo test was planted late (June 10) and was severely frosted (Sept. 10). This stopped growth in the later strains and made the yields and chemical composition quite abnormal.

CHEMURGIC CONFERENCE

More than 30 speakers on major topics of argo-industrial enterprise will appear on the 3-day program of the National Farm Chemurgic Conference which opens in Memphis, Tenn., March 30. The meeting will also be featured by a number of farm science exhibits. It will be the 14th annual session of the National Farm Chemurgic Council.

"Chemurgy in the Southland" will be the theme of the program, but although all speakers will deal with research, growth, or industrial conversion of Southern crops, most of the topics will be national in scope.

Crops and by-products which will receive major attention include cotton, cottonseed, okra oil, pecans, grain sorghums, wood, corn cobs, oat hulls, rice hulls, sweet potatoes, alfalfa, soybeans, tall oil, sunflowers, safflowers, and sugar cane bagasse.

—s b d—

OIL CHEMISTS MEETING

Announcement is made in the January issue of the *Journal of the American Oil Chemists' Society* that the 1950 annual meeting, to be held in May, will be in Atlanta, Ga., with T. C. Law of Law and Co. as honorary chairman and E. C. Ainslie of the Buckeye Cotton Oil Co. as chairman.

Two phases to be emphasized in the program of technical papers for the 1949 annual meeting, according to K. S. Markley of New Orleans, are fundamental research and the practical and engineering aspects of oil and fat chemistry. This meeting will be held May 10-12 at the Hotel Roosevelt, New Orleans. Chairman of the convention is T. H. Hopper of the Southern Regional Research laboratory.

—s b d—

SALAD OIL FROM RICE

USDA's Bureau of Agricultural and Industrial Chemistry reports that rice can be made a source of salad and cooking oils, according to the Associated Press. It said research has shown that such oil can be obtained from the natural coating and germ removed from rice in the milling process.

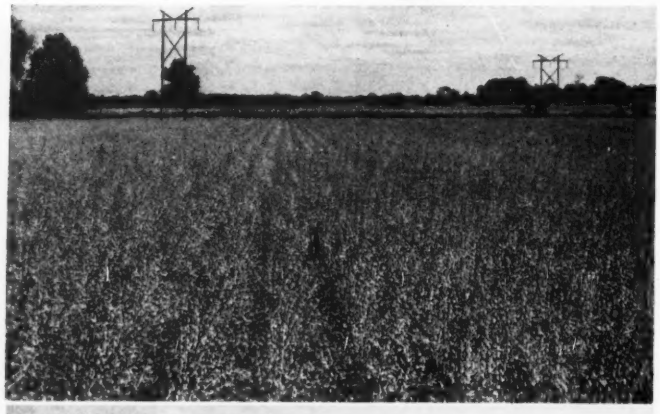
"It is estimated that as much as 20 million pounds of oil might be recovered annually from the 'bran' from the United States rice crop," the bureau said.

The department of agriculture research laboratory at New Orleans is at work on processes for recovering rice oil. It has processed edible oil of acceptable grade.

THE WABASH SOYBEAN

By A. H. PROBST

Associate Agronomist, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, U. S. Department of Agriculture in cooperation with the Purdue Agricultural Experiment Station.



A Comparison of Wabash with Gibson, Patoka, and Chief Grown in Uniform Regional Tests — 1943-1948

Variety	Acre Yield 73 Tests Bu.	Maturity Index[1] 58 Tests Days	Lodging[2] 60 Tests Score	Plant Height 64 Tests Inches	Seed Quality[3] 59 Tests Score	Oil Content[4] 70 Tests Percent
Wabash	28.8	-2.2	2.1	39	1.7	21.4
Chief	27.7	-3.5	2.7	44	2.1	20.6
Patoka	27.0	-2.2	2.2	33	2.0	20.3
Gibson	25.4	0	2.7	38	1.7	20.1

[1]Days earlier than Gibson.
[2]Based on score of 1-5. 1 is erect, 5 is badly lodged.
[3]Based on score of 1-5. 1 is very good, 5 is very poor.
[4]Dry basis on composite samples of all locations each year in regional tests.

Wabash is a new soybean variety similar in maturity to Patoka and Chief. It combines high yield, high oil content, good standing ability, desirable height, and good quality of seed. It is being released for seed increase in its area of adaptation.

Wabash was developed cooperatively between the Midwestern agricultural experiment stations of the North Central Region and the U. S. Regional Soybean Laboratory, U. S. Department of Agriculture.

Wabash is a pureline selection made by A. H. Probst and G. H. Cutler of the Purdue Agricultural Experiment Station from a cross between the Dunfield and Mansoy varieties in 1941. The cross was made by C. M. Woodworth of the Illinois Agricultural Experiment Station in 1935. Early generation selection and testing was done at Urbana, Ill., by L. F. Williams of the U. S. Regional Soybean Laboratory.

This new variety excels Gibson, Patoka, and Chief in yielding ability, oil content, lodging resistance, and seed quality. It grows rather erect and is not bushy or whip-like making it easy to combine. It pods well above the ground on soils of average or higher fertility. The yellow seeds are rather similar in size and shape to those of Gibson.

Wabash has been tested extensively in several Midwest states and found to be well adapted for use in southern Indiana, southern Illinois, most of northern Missouri and a small area in northeast Kansas. The areas of its adaptation are shown on the map. Its best use will be to replace Gibson, Patoka, Chief, and Boone.

Wabash soybean seed will be gen-

(Continued on page 21)

At top, left, here's where Wabash is best adapted. It has been tested at the locations indicated.

Center, left, Wabash stands well and matures uniformly as noted in this field on the Sloan farm at Worthington, Ind. Yield was 35 bushels per acre. —USDA photo

Bottom, left, Bernard Wagner of Evansville, Ind., looks hopefully at a few plants from a 75 acre multiplication field of Wabash which averaged 40 bushels per acre.
—H. R. Lathrop, Purdue, photo

VALLEY FARMS OPEN ST. LOUIS OFFICE

The consolidated control offices of Cypress Land Farms Co. and Valley Farms Co., that operate 14,000 acres of Illinois and Missouri farm land, have been removed to 314 Merchants' Exchange Bldg., H. I. Cohn Sr., manager, announces.

A trading seat on the exchange has been bought by the two firms as an outlet for their varied crops, and as an exchange medium for their seed operation. The two concerns are large producers of farm seeds, including Rickard Korean, Lincoln, Hawkeye, Ogden, S100 and Laredo soybeans.

For the convenience of farmer friends who visit the office, a large comfortable private office has been decorated with the farm motif elegantly displayed in the pictures, draperies and accessories. Two long distance telephone lines are available for office and visitor use. Many friends from out of town use MAin 6100 as a clearing house when they are expected in St. Louis. A visit to the trading floor of the Exchange is always a highlight of a visit. H. I. Cohn, Jr., is assistant manager.

Farm offices are maintained at Wrights, Ill., and Jaywye, Mo., but all the principal records and time-consuming bookkeeping are handled in St. Louis. This assures the farm managers of the respective areas rather complete freedom for farm overseeing. Lloyd McLane is resident farm manager of Valley Farms at Wrights, and John Brown of Cypress Land Farms at Jaywye.

Both the Illinois and the Missouri operations are on rich bottom lands behind river levees where soybeans and other crops grow lush and produce heavy yields. Valley Farms are underlaid with 400 miles of tile, and the Illinois River is held back by levees on both sides of the farms. Lands along the bottoms were of little value until they were ditched and tiled 25 years ago, but have been made immensely productive since. This job on Valley Farms, which were once the Fairbanks Ranch, cost over 1 million dollars.

Since the Ranch was acquired by Valley Farms Co. in 1939, many improvements have been made, including putting in good roads and the acquisition of good tenants. Crops grown there now include wheat, corn, lespedeza, sweet clover and alfalfa in addition to soybeans. About 2,500 acres of soybeans were grown on Valley Farms in 1948.

Cypress Land Farms at Jaywye, Mo., were also all swamp at one time. The company acquired these lands in 1932, when the drainage ditches were in but much of the land was not yet cleared of its cypress and other timber.

Cypress Farms are growing about 1,200 acres of cotton and an equal acreage of soybeans. A mechanical cotton picker was put into operation in 1948, and the Farms expect to acquire two more in 1949.

There is storage for 40,000 bushels of soybeans. Since all soybean seed handled comes from the company's own farms, it has a close check on variety purity.

Cypress Land Farms are making rapid strides toward modernization and improvement of living conditions, with $20,000 annually being invested in housing improvements.

—s b d—

WABASH

(Continued from page 20)

erally available by 1950. Seed from the 1948 crop already has been allotted to farmers experienced in the production of certified seed who will grow it according to certification rules in 1949 and make it available to other growers. There should be plenty of seed available for all soybean growers in the areas of its adaptation in 1950, so please don't write to your agricultural experiment station for seed now.

Below, you see three combines operating in a field of Koreans at Valley Farms in mid-October 1948. At bottom main drainage ditch on the 10,000 acres of Valley Farms that lie in the Illinois River bottoms between Carrollton and Wrights, Ill. Pumps can transfer 8 million gallons of water an hour from the ditches to the river.

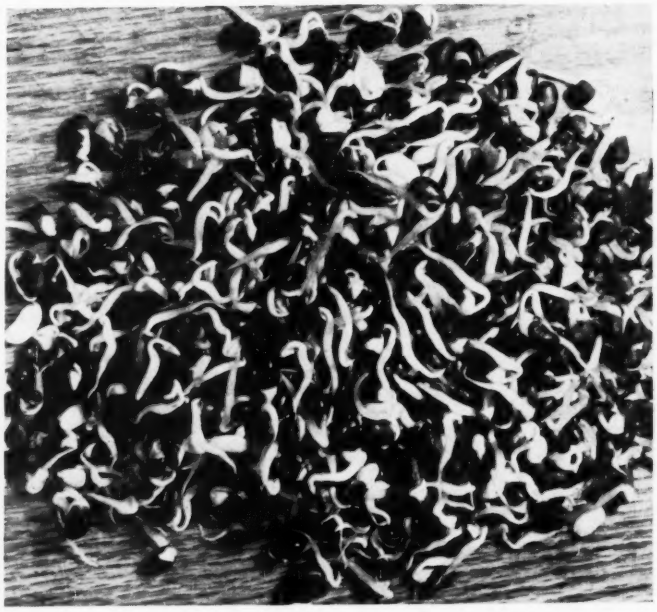
—Photos by Minneapolis-Moline Power Imp. Co. (just below) and Soybean Digest

VIGOR and Viability in Soybeans

By DSAI-CHWEN DJU and CLIVE McCAY

Animal Nutrition Laboratory, Cornell University, Ithaca, N. Y. From a thesis of Miss D. C. Dju, submitted to the Graduate School of Cornell University.

DR. DSAI-CHWEN DJU



Sprouted soybeans.

SPROUTED BEANS have long been used in the Orient and India for food. In the Pacific Islands sprouted coconuts are eaten. During the past 7 years the factors contributing to the production of satisfactory sprouted soybeans have been studied in our laboratory. Much of the actual sprouting of beans has been carried out in an automatic watering device that was devised by one of us in 1912. This is used regularly for such studies and for producing a supply of sprouted oats to feed to certain experimental animals, such as hamsters.

Beans to be used for sprouting must not only be viable but must also possess the little understood quality of vigor. Without the latter, beans mold and the sprouts are not edible.

Many excellent reviews, such as those of Toole (1) and Crocker (2), have covered the extensive literature concerning longevity and viability in seeds. In contrast, research devoted to vigor has been given almost no attention.

In the chain of reactions that take place during the first 4 days of life of the seedling, there may be enzyme systems that have been preserved or destroyed during the storage of the seed. The seed may be viable but lack vigor.

Two ancient practices used in the preservation of mung beans for sprouting in India consist of covering the seeds with wood ashes or coating them with a thin layer of castor oil. Both of these methods were checked in the course of our study and found to be slightly favorable for the preservation of the vigor and viability of soybeans kept at room temperature. The oil treatment seemed the better of the two.

Experiment

A quarter of a century ago the French worker Gaullaumin (3) claimed that inert gases, such as nitrogen, and storage in vacuo preserved the viability of soybeans. The first half of the present study was concerned with checking this French research.

All of our studies were made with the Earlyana variety, grown for seed

TABLE 1
THE EFFECT OF VARIOUS GASES UPON THE VIGOR AND VIABILITY OF SOYBEANS STORED AT ROOM TEMPERATURE (25°) AND 4° C.

Gas	Temp.	Sprouts over 2 cm (%)							Viability (%)						
		Storage Mos.							Storage Mos.						
		0	1	2	3	4	5	6	0	1	2	3	4	5	6
Air	25° C.	75%	45%	44%	35%	12%	11%	0%	100%	100%	97%	98%	67%	58%	42%
	4° C.	75	67	73	81	70	71	66	100	100	100	99	100	100	100
Vac.	25° C.	75	47	35	27	9	4	0	100	100	100	96	67	54	52
	4° C.	75	76	60	82	68	62	67	100	100	100	100	100	100	100
O_2	25° C.	75	52	39	36	25	6	2	100	97	91	95	93	51	42
	4° C.	75	66	71	71	86	57	86	100	90	100	100	100	100	100
N_2	25° C.	75	55	38	28	8	7	1	100	100	97	97	81	45	40
	4° C.	75	68	65	74	62	61	78	100	97	100	100	99	100	100
CO_2	25° C.	75	55	48	30	9	7	2	100	99	92	97	79	79	45
	4° C.	75	58	64	76	59	75	75	100	99	98	100	100	100	100

near Ithaca. These were sealed in large pickle jars in mid-November shortly after harvesting and held in the refrigerator at 5° C. until ready for use.

In order to test the effect of inert gases, as well as vacuum, samples containing 50 beans each were sealed into glass tubes which were a half inch in diameter and a foot and a half long. At monthly intervals duplicate samples were sprouted under standard conditions at 25° C. for 4 days after the beans had been soaked overnight.

Beans were rated as having vigor on the basis of the percent that attained a length of 2 centimeters. The inert gases used were nitrogen and carbon dioxide. For comparison beans were stored in air, in oxygen, and in vacuo.

The results are summarized in Table 1. None of the gases seemed to affect either the maintenance of viability or vigor. Temperature had a profound effect upon both. The vigor was well maintained, even for 6 months when the soybeans were stored in the refrigerator above freezing.

At room temperatures the loss of vigor proceeded much more rapidly than the loss of viability.

A few tests were run to compare beans suspended in cloth bags with those held in stoppered bottles. In the refrigerator no differences were found but at room temperature both viability and vigor were better maintained in the beans in the cloth bags. In the refrigerator these beans increased their moisture content from 13.5 to 14.2, while those at room temperature dropped from 13.5 to 7.5 percent.

• *Dr. Dju, a graduate student of the Cornell University school of nutrition, is married to a former Harvard University graduate student and has returned to China. Dr. McCay is professor of nutrition at the experiment station at Ithaca.*

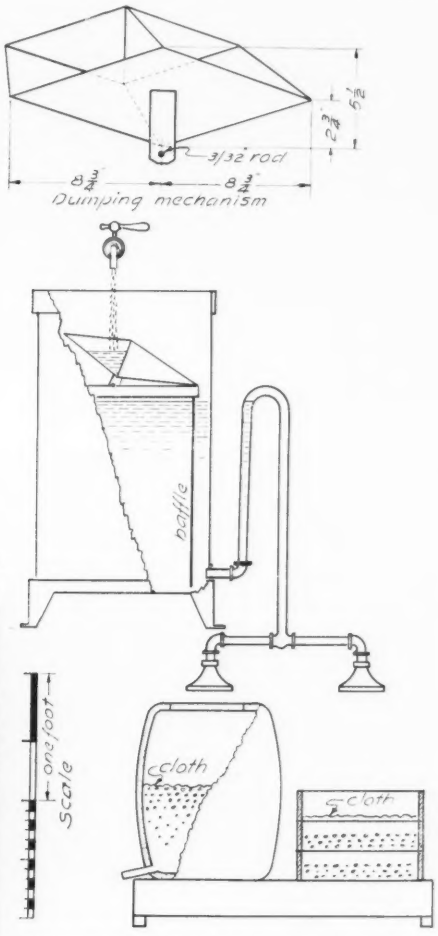
Moisture Percentage and Room Temperature Effects

In the hopes of discovering some means for maintenance of vigor in beans stored at higher temperatures, tests were made upon samples of varying moisture content. The procedures used for reducing the moisture were: (1) drying in vacuo in a current of dry air at 40° C. (2) drying over concentrated H_2SO_4 (a) in the refrigerator, and (b) at room temperature. To increase the moisture, beans were soaked either in water or kept in contact with moist sand.

The reduction of the percentage of moisture from 13.5 to 4.6-6.2 produced a decrease in vigor from 75 to as low as 2 percent. The mean of 11 trials was 20 percent. Three-fourths of the vigor had been lost. The drop in viability in these 11 trials was about 30 percent.

Drying must have injured some of the enzymes essential for germination.

Beans of varying moisture content were exposed to temperatures of 40° C., 50, and 55, for 24 hours. The data (Table 2) indicate that temperatures of 50 and 55° C. destroyed viability when the beans contained 32 percent or more of moisture. Low moisture content did not seem to protect beans against the destruc-



AUTOMATIC SOYBEAN SPROUTER

Illustration and diagram of automatic soybean sprouter used with the experiments.

TABLE 2

The Effect of Holding Beans at Varying Moisture Content at Three Different Temperatures.

Temp. Degrees C.	Moisture (%)	Number of Trials	Sprouts over 2 cm. (%)	Viability (%)
40	6.2	2	72	75
	13.5	6	84	100
	20.0	5	87	100
	26.0	7	75	100
	34.5	3	61	100
	50.0	3	49	100
	58.5	4	44	100
50	4.6	3	5	45
	13.5	4	29	86
	32.0	1	0	0
	42.0	1	0	0
	57.0	1	0	0
55	5.3	1	2	32
	10.0	3	4	25
	13.5	1	14	54
	46.0	1	0	0

tive action of these higher temperatures. Even at 40° C. there was injury to the vigor of beans previously hydrated to 50 percent or more.

To determine if the temperature during the time of drying might be a factor in the reduction of vigor and viability, a comparison was made between beans dried in dessicators over sulfuric acid at room temperature (22-25° C.) and in the refrigerator at 4° C. In both cases the vigor was reduced to about a fourth of its original value and the viability to 60 percent.

Freezing, Moisture Content, Vigor and Viability

To determine the effect of freezing, tests were made on beans of varying moisture content held at a temperature of -20° C. for periods varying from 1 hour to 7 days. The results (Table 3) indicate that beans with as much as 25 percent moisture can be kept at this low temperature for a week without loss of vigor or viability. If the beans contained 50 percent moisture, however, the injury was marked after 8 hours at this low temperature.

Summary

(1) Storage in nitrogen, carbon dioxide, and in vacuo had no effect upon vigor or viability of soy beans.

(2) Maintenance of both vigor and viability was much better in the refrigerator than at room temperatures.

(3) Ancient Indian methods of storing beans coated with castor oil or wood ashes assisted in maintenance of vigor.

(4) Dehydration of beans to 7 percent moisture injures both viability and vigor.

(5) Beans containing more than 32 percent moisture are readily injured by exposure to high temperatures of 50-55° C.

(6) Beans containing 25 percent or less of moisture are not injured by exposure for a week in frozen storage at -20° C. With a moisture content of 50 percent such beans are seriously affected by 8 hours of exposure.

TABLE 3

The Relation Between Moisture Content and Injury From Frozen Storage at 20° C.

Time Held (Hours)	H_2O %	Number of Trials	Sprouts over 2 cm. %	Viable %
0	6.0		12	71
	13.5		75	100
	25.5		98	100
1	6.0	2	15	76
	13.5	4	69	99
	25.0	4	97	100
8	6.0	2	31	86
	13.5	4	77	100
	25.0	4	88	89
16	6.0	2	16	73
	13.5	4	74	99
	23.0	4	67	72
24	6.0	2	43	83
	13.5	5	69	99
	25.0	6	78	89
	50.0	2	8	8
48	13.5	3	71	99
	25.0	4	68	73
	50.0	2	0	0
168	13.5	1	80	100
	25.0	2	98	100
	50.0	2	0	0

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PLAN SOY FOODS FOR USE IN GERMANY

The drab and inadequate diet of Germany may get a dash of spice soon along with increasingly greater amounts of badly needed protein.

The food nutrition laboratory of Archer-Daniels-Midland Company, Minneapolis, now is at work developing new foods for human consumption using soya as the base. Already developed are two tasty soybean "sausages", earmarked for German consumption. One of the A-D-M sausages is a mixture of 50 percent meat and 50 percent soya and vegetables. The other contains no meat, only soya and vegetables, yet it tastes like the real meat product.

Other food products, all using protein-rich soya as the basic ingredient, are also to be developed at A-D-M for subsequent manufacture and use in the allied zones of Germany.

A German nutritionist, Dr. William Bening of Frankfurt, can be credited with starting the search for these new and palatable soya foods. He first proposed the use of soybeans to allied food production officials in Germany only a short time after the war had ended in Europe.

It was already apparent then that it would be a decade or so before his demolished country could expect to be back on a normal meat diet. The individual German, Dr. Bening declares, still is getting less than a pound of meat per month. Milk, fish, and eggs, other sources of animal proteins, are also extremely scarce.

The answer, he reasoned, was to use soybeans to fill the breach. He selected the soybean as the best protein source for a logical reason. It is the one vegetable protein that contains a proper balance of the 10 essential amino acids found in meat, and thus, he explains, it can take the place of animal proteins as a tissue builder and source of energy for the German people.

Moreover, edible soya products contain 50 percent protein and cost only about 5 cents per pound. Meat

—Soybean Digest photo

Visitors at American Soybean Association headquarters at Hudson, Iowa, in January were Dr. William Bening of Germany (center), and R. G. Brierley, Archer-Daniels-Midland Co., Minneapolis (right). They are here shown chatting with ASA Secretary-Treasurer Geo. M. Strayer.

is much costlier and contains only about 17 percent protein.

Dr. Bening points out that although considerable progress has been made in re-building his country's food economy, the average German still subsists on an inadequate diet that is top-heavy in carbohydrates. More protein is the real need now, he asserts.

Last fall Dr. Bening conferred with Richard G. Brierley, A-D-M's assistant vice-president in charge of soya products, while the latter was in Germany studying soy food utilization on behalf of the U.S. army. The two men have since carried their investigation of the soy food problem back to this country where Dr. Bening has met with A-D-M officials, Soy Flour Association and American Soybean Association members, and food laboratory specialists to determine whether the new food products will be satisfactory. Producing a palatable soya food seemed to be the chief problem. But now both men are agreed that the soy sausage will be accepted eagerly in Germany.

Dr. Bening also conferred with U. S. government officials to urge their cooperation.

On his return to Germany in February, Dr. Bening planned to take his case to Stanley Andrews, head of the food production program in the allied zones. Then, he declares, food processors in his country will have to set up the machinery for processing the soybeans shipped from the U. S.

Recommended Varieties

Map shows the best, high-producing varieties that will mature in each state in normal years, as recommended by state experiment stations and the U. S. Regional Soybean Laboratory.

ORIENTAL USES OF SOYBEANS AS FOOD

Soybean milk for sale on the streets of Canton, China (August 1948).

By ALLAN K. SMITH

Northern Regional Res. Laboratory[1]
Peoria, Ill.

II. CHINA

With Attention to Fermented Products Notes on Oriental Farming Practices

Soy Sauce in China

SOY SAUCE represents one of China's largest uses for soybeans. Soy sauce is used in the kitchen for the daily preparation of food and also as a table condiment. At most meals a dish of soy sauce is placed on the table and certain foods are treated or dipped in the sauce for seasoning. The sauce is about 18 percent salt, hence serves as a salting agent as well as a flavor accentuator.

The soy sauce industry is made up largely of small plants which serve their own communities. There is no transportation of soy sauce from one town to another; in fact, it was discovered that to a certain extent the farmers manufacture their own requirements.

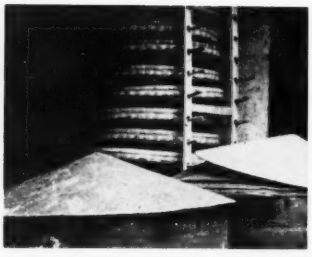
The largest Chinese soy sauce plant visited was in Shanghai. This plant was owned and operated by the Chang family with offices at 672 Peking Road. Their operations covered about 6 acres. It was estimated they were using 6,000 or more earthenware jars (each approximately 50 gallons' capacity) for soy sauce production. The Chang plant is probably the largest in China, as well as the largest in Shanghai. Most of the plants inspected were using 40 to 100 earthen jars.

Two plants, one each at Peiping and Tientsin, built by the Japanese during their occupation of China, now are operated by their respective municipal governments. These Japanese-built plants followed procedures similar to those developed in Japan; their manufacturing processes were housed in semi-modern brick buildings; and the fermentation step was carried out in large cement tanks.

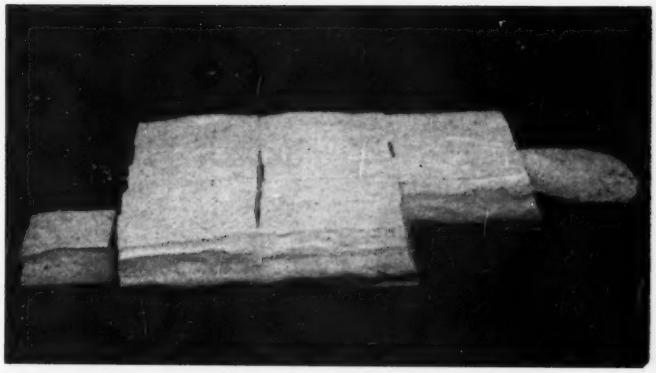
With the exceptions mentioned, the making of soy sauce in China still follows the traditional methods and has seen little change in the past few hundred years. The plants are family-owned and operated. In some instances the same family claims to have made soy sauce for 500 years. The

[1]One of the laboratories of the Bureau of Agricultural and Industrial Chemistry, Agricultural Research Administration, U. S. Dept. of Agriculture. Report of a study made under the Research and Marketing Act of 1946.

Below, you see three steps in the production of soy sauce. At left, beans are placed in the large wooden tubs, placed over a boiler, for steaming. The steamed beans are placed in woven baskets or trays (center), for 3 to 7 days to permit growth of mold, (Aspergillus oryzal). Then they are mixed with parched and cracked wheat and placed with salt solution in earthenware jars (right) for fermentation which lasts for 3 months to 2 years. Soy paste is fermented in a similar manner. Pictures at left were taken in Nanking, one at right in Shanghai.



• *This is second in a series of articles on food uses of soybeans in the Orient, based on Dr. Smith's trip to Asia in the summer of 1948. Photos are by the author.*



Freshly prepared soy curd for sale in the market place at Peiping (June 1948).

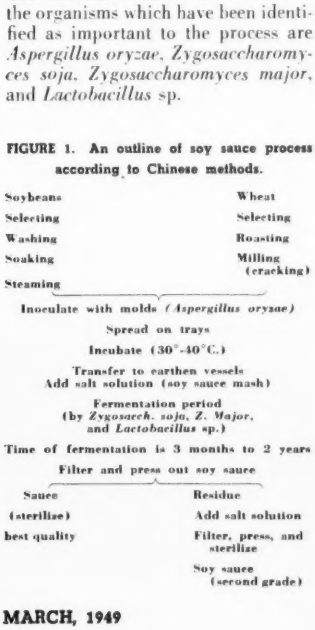
microbiological and chemical processes involved in soy sauce production are, of course, very complicated and not well understood even by the best informed scientists. It is not surprising, therefore, that tradition rules in China and many plant operators claim that exposure of their product to the sun and even to the moon are significant factors in producing the best flavor and aroma.

However, the shortage of soybeans and wheat in China is forcing a shift in some localities to the use of soybean cake in place of the whole beans and to starchy materials other than wheat or wheat flour. When wheat or wheat flour is unobtainable or too expensive, the Chinese are substituting wheat bran, oats, kaoliang, and rye. Barley is not favored. The different starting materials modify to some extent the flavor of the resulting soy sauce. It is preferred that the grain supplying the starch should be rich in this component and low in fiber.

While there are several minor variations in brewing of soy sauce the diagram in figure 1 and the following description illustrates the process.

The brewing of soy sauce is known to involve the action of molds, yeasts, and bacteria in that order. Some of the organisms which have been identified as important to the process are *Aspergillus oryzae*, *Zygosaccharomyces soja*, *Zygosaccharomyces major*, and *Lactobacillus* sp.

FIGURE 1. An outline of soy sauce process according to Chinese methods.



It is generally known that starch is hydrolyzed by amylases to dextrins and sugars, and that the proteins are hydrolyzed by proteolytic enzymes to amino acids. The sugars are partly converted to alcohol and carbon dioxide and the alcohol may be further oxidized to acids. Most of the carbohydrates eventually are converted to acetic, lactic, butyric, succinic, and other organic acids. The simultaneous presence of alcohol and organic acids encourages the formation of esters and this probably accounts for the pleasant aroma of the sauce.

Sound whole soybeans are preferred for the process. They are washed clean and soaked in water. In summer about 12 hours are required but in the lower temperature of winter, about 24 hours are required for complete wetting of the bean. The beans are next steamed, either at atmospheric pressure or, as in the more modern plants, under a steam pressure of 10 p.s.i. In the latter instance, the pressure is very slowly raised to the maximum and held there for an hour, then permitted to subside slowly to zero pressure. The total time of steaming is about 12 hours.

After the steaming operation the beans are mixed with an equal weight (dry basis) of wheat that has been parched and cracked or with an equivalent amount of wheat flour, wheat bran, or other cereal grain. At the same time it is inoculated with a prepared Koji (culture) and placed in shallow trays where the mold is allowed to grow to the spore stage. In some plants the mold fermentation is carried out in a special room where the temperature can be controlled, roughly, around 30°-40° C. and a high humidity can be maintained. Under favorable conditions, 72 hours are required for proper mold development. Many small plants depend on wild mold to start the fermentation and have no control of temperature or humidity. Under these conditions the initial fermentation may require a week or more for completion.

The molded material is then mixed in earthenware jars with sufficient salt solution so that the final product will contain 18 percent salt. The earthenware jars are kept out of doors in a courtyard where the fermentation process may continue for 3 months to a year or more. The contents of the jars are stirred every day in the early

TABLE 1 — ANALYSIS OF FOUR REPRESENTATIVE SOY SAUCE SAMPLES

Item	Sauce A Chinese Nanking	Sauce B Japanese Noda	Sauce C Chinese Old process	Sauce D Chinese New process
		Grams per 100 milliliters		
Total solids	32.0	38.13	29.7	30.5
Mineral matter		19.70	20.2	16.4
Sodium chloride	16.0	18.02	18.8	14.0
Phosphoric acids (as P_2O_5)		0.48		
Total nitrogen	1.0	1.51	0.76	1.01
Protein nitrogen		0.09		
Nonprotein nitrogen		1.42	.72	1.00
Amino nitrogen		0.70		
Volatile acids (as acetic)	0.5	.14		
Nonvolatile acids (as lactic)		.65		
Total acidity	.7		4.1	5.3
Sugar (as glucose)	2.0	5.99	3.06	6.74
Dextrins		1.06		
Total carbohydrates (as glucose)			4.2	9.6
Viscosity[1]		4.84	3.04	4.18
Hydrogen ion concentration—pH		4.6	4.6	4.9
Hydrogen ion concentration (10 times diluted)			4.9	5.2
Specific gravity 15° C.	1.2	1.2	1.195	1.19

[1]Sample (B) by Ostwald at 25° C., (C) and (D) by Hoeppler viscometer at 30° C.

stages of fermentation and covered during rainy periods.

At most of the sauce plants it was stated that fermenting proceeded for 8 to 9 months, and they always insisted that the longer the fermentation period the better the sauce. However, many plants acknowledged that because of material shortages they were using only a 3-month fermentation period for much of their product.

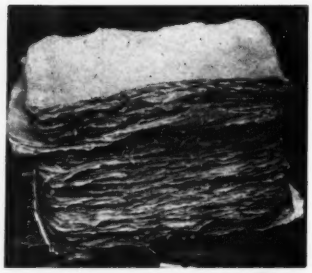
When the fermentation is completed the mash is placed in a filter press for removing the first grade of soy sauce. The residue is then extracted with salt water to obtain a second grade sauce. A third extraction may be made and used in subsequent operations.

The composition of several different soy sauce products are shown in table 1. The samples include (A) the sauce and analysis from National Central University at Nanking, China; (B) analysis by public analyst of soy sauce from the Kikkoman Shoyu Co., Limited, Noda City plant, Japan; (C) and (D) are Chinese soy sauce samples from the "old process" (1 year) and the "quick process" (3 months), respectively, and were furnished by Dr. Pei-Sung King and C. T. Siao of the National Bureau of Industrial Research, Shanghai, China, and the analysis by analytical section of the Northern Regional Research Laboratory.

The high salt concentration is required to inhibit the action of undesirable microorganisms and to preserve the soy sauce, however, it also has the detrimental effect of slowing up the action of the desirable organisms and imparting a too salty taste to the sauce.

In China no standard of composition or method of preparation for the soy sauce is found. The quality is determined by flavor. In Japan the standard sauce is supposed to contain 1.5 grams per 100 milliliters total nitrogen as in sample B (table 1). Because of material shortages, sauce is now being produced at half of this nitrogen concentration. The salt content, however, is maintained at 18 grams per 100 milliliters.

In China, after the sauce is filtered it is usually sterilized at 65° C. for 30 minutes. Significantly higher temperatures are avoided because they cause flocculation of some components. After sterilization coloring matter, condiments, and preservatives are sometimes added. The most common coloring matter is caramel; licorice or maltose may be added as a sweetening agent; and in some places a special sweetening agent is made from millet which is known as "millet jelly." The millet jelly is about 50 percent maltose and 50 percent other carbohydrates. Spices such as cloves, nutmeg, pepper, cinnamon, ginger, allspice, and other condiments with names which could not be translated into English, are frequently added to the soy sauce. The best grade soy sauce, however, does not ordinarily contain condiments.



The skin that forms on the surface of heated soy milk is known as Yuba after it is removed and dried. It is valued for its high protein content in Chinese food products.

The addition of condiments after sterilization would appear to cancel out the previous sterilizing process, since some of the condiments are known to be heavily infected with microorganisms.

A few soy sauce plants add preservatives such as sodium salicylate or beta-naphthol to their final product.

Sweet Flour Paste—Tien Mien Chang

"Sweet flour paste" was found only in Peiping, China, although it is probably produced elsewhere. The raw material for this paste is steamed bread, a wheat flour product.

In making Tien Mien Chang, steamed bread is laid on sorghum stalks in a shed which ordinarily has one open side. The operator for this process stated that it was not successful if the sorghum stalks were replaced with bamboo or other materials. Grass mats are lowered over the open side of the shed and the bread allowed to mold for three weeks. Considerable heat is evolved during fermentation and the temperature is roughly controlled by spraying water over the shed and by means of ventilation.

The fermented bread is placed in earthenware jars in an outside courtyard with 5 percent salt and a very little water. An additional small amount of water is added each day during the early part of the fermentation period, but this part of the operation was not fully disclosed — the operation was a trade secret supposedly known only to this family. The paste is stirred several times each day while the fermentation continues for 6 to 8 months. The making of sweet flour paste usually is started in May of each year.

Soy or Vegetable Milk

Soy milk is a product closely associated with soy curd or Tofu, since the initial steps in making them are the same. Both are food products in common use throughout China, Japan, and Korea. Soy milk and curd are as unstable as cows' milk and, therefore, are prepared fresh each day and sold on the street or in small food shops.

While any variety of soybeans may be used to make bean milk or curd, certain varieties such as the "eighth month white bean" or "water white bean" are preferred varieties.

To prepare the milk the beans are thoroughly washed and in summer are soaked in water 6 to 7 hours, in winter 24 hours. The beans are then ground in a stone mill with cold water. The stone mill is powered usually by a small donkey or by hand. The ratio of water to beans is about 10 to 1, although this ratio may vary somewhat. The crushed mass is filtered through a cloth and pressed to remove as much of the liquid as possible. In the most advanced methods, salts, sugar, oil, and vitamins may be added to obtain a balance of the constituents comparable to that found in cows' milk; and the milk is boiled for as much as 30 minutes and is sold on the streets in bottles. Considerable protein is left in the residue which goes for animal feed.

Numerous experiments, especially in camps for refugee children, have demonstrated that soy milk can be prepared in a highly nutritious form although it usually has a characteristic soybean flavor that is not too popular even with the Oriental people. This is probably the reason it is consumed mainly by the poorer people.

The China National government has taken an active interest in soy milk for use by its army. Willis Miller, with offices and business connections with the Henningsen Produce Co. in the Dollar Building at 51 Canton Road, Shanghai, has just completed building a soy milk plant for the Chinese government. The process is patterned after that of the International Nutrition Laboratories at Mt. Vernon, Ohio, for making a powdered or spray-dried milk. Mr. Miller is also supervising the installation of a vegetable canning plant for the same purpose.

Yuba: If soybean milk is heated to boiling a protein film will form on the surface. This film may be removed with sticks, hung on a line and dried to form a yellow colored sheet. The

AND I REPEAT!

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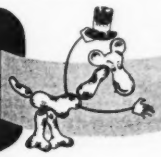

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product is known as Yuba. When dry, the sheets are brittle. The Yuba in sheet form may be used as a wrapper for other foods, or broken into smaller pieces or cut into ribbons and fried or used in soups.

Soybean Curd or Tofu

Soy milk may be used directly for making Tofu or, if preferred, a few sheets of Yuba may be removed before precipitating the curd. The curd is usually precipitated from hot milk with a magnesium or a calcium salt. It appears that some shops, for economic reasons, use a mixture of salts that are left after removing sodium chloride from sea water. Since the Chinese diet is low in calcium, it is apparent that the most desirable precipitant would be a calcium salt. The type of salt and temperature of precipitation are factors which markedly influence the coarseness and other physical properties of the curd. For 133 pounds of soybeans about 6 pounds of gypsum is recommended for precipitation. The curd is allowed to settle, then filtered into a cloth and the cloth with the enclosed curd is placed in a wooden frame for pressing. Pressure is applied over a period of time by any suitable means to reduce the water content of the curd and give it a consistency satisfactory for cutting into small cubes. It is then ready for sale or fermentation into various types of cheeselike products.

One of the most popular methods of using Tofu is to add it in small squares to soup. It is used extensively in the Buddhist restaurants as a meat substitute; in fact, they prepare the curd to look like breast of chicken, roast of pork, and other meat and fish dishes. One restaurant prepared more than 25 different dishes from soybeans; the Chinese names of most of these dishes have no English equivalent. The curd, which has little flavor, may be fried in various types of sauce, made with egg into an omelet, cooked with meat, smoked, or fermented.

Soybean Cheese

Soybean curd, previously described, is the starting material for making all types of soybean cheese. In making the curd it is pressed hard enough so that it can be cut into small cubes, these varying in size for different cheese preparations. Significant variations in the processes, besides the microorganism, are the proportion of salt and type of solution in which the cheese is aged. The cheese appears to vary somewhat with the locality in which it is produced, a variation due probably to the influence of climatic conditions on the activity of the fermenting microorganisms.

At Hangchow they make a cheese product known as "Chee-fan," "Chee" meaning cheese and "fan" meaning small cube, hence a literal translation is "small cheese cube." This type of cheese was reported to be made in only two localities, Hangchow and Shoshing, the home of the famous Shoshing wine.

Chee-fan is a brownish soft cheese. It has both an agreeable smell and taste. The following materials and proportions are recommended for making this cheese.

Material	Chinese Wts	Metric Wts
Soybeans	1 za	70 kilograms
Salt	50 kins	25 "
Yellow wine (Shoshing)	70 "	55 "

In making the cheese the pressed soybean curd, prepared from the recommended amount of beans, is cut into cubes about ½ by ½ by ¼ inches. The cubes are inoculated with mold, salted, and placed in an appropriate storage house for about 7 days for development of mold. The mold *(Mucor)* is grown on wheat flour. It exists in Chinese mold of wine and is white in color. Also, *Aspergillus glacus*, blue in color, apparently takes part in the cheese development. The cubes are next placed in an earthen crock or wide-mouth bottle of about 2-gallon capacity, and yellow wine and mold of wine are added. It is allowed to age in the wine for about 1 year.

Tsue-fan is another type of cheese that translated literally means "drunken cheese." The name probably reflects the use of wine in making the cheese. The materials and proportions for this cheese are:

Material	Chinese Wts.	Metric Wts
Soybeans	1 za	70 kilograms
Salt	30 kins	15 "
Wine	70 "	35 "

The pressed soybean curd, cut into cubes 1½ by 1½ and ½ inches, is boiled in water, cooled, and partly dried. It is molded and placed in yellow wine (rice wine) with wine mold added and aged for 6 months.

Hon-fan is a red cheese that makes use of soy sauce in its preparation. The materials and their proportions are as follows:

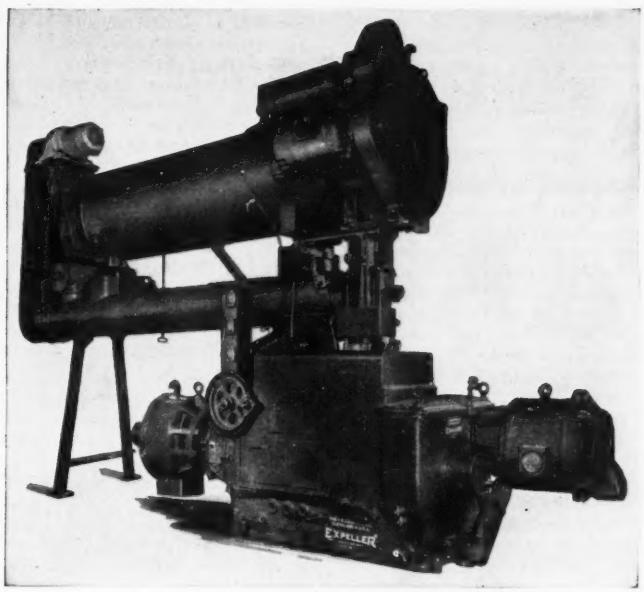
Material	Chinese Wts.	Metric Wts
Soybeans	1 za	70 kilograms
Salt	60 kins	30 "
Soy sauce	20 "	10 "
Red mold (from Foochow)	1.5 "	.75 "

This cheese is made in the same manner as "drunken cheese" except that soy sauce rather than wine is used in aging the cheese. It was reported that red cheese is made only in the fall of the year.

Fen-t'iao from Mung Beans

Fen-t'iao or Fentiao is a string-like product somewhat resembling spaghetti in physical appearance but its chemical composition is mainly protein rather than carbohydrate. Fen-t'iao translated to English means "flour string," and is made from the "green bean" or mung bean.

In preparing fen-t'iao the beans are cleaned and soaked in water 10 to 12 hours. They are then ground to a paste in a stone mill and water is added to three times the original volume. The mash is then put through a sieve to remove hulls and other coarse



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fibrous particles which are discarded. After the mash settles, the supernatant solution is removed first by decantation and then by filtering and draining in a cloth bag, and discarded.

The most important step in making fen-t'iao is kneading the proteinaceous material. Kneading is supposed to determine the quality of the product. In China kneading is a hand operation lasting 2 to 3 hours. At the start, a small portion of the proteinaceous material is dipped in warm water for a few minutes and the kneading operation begins, then additional quantities of the protein are added until the whole batch is kneaded together. The temperature of the operation should be about 37°-40° C. and if the best results are obtained, the fen-t'iao becomes transparent.

To convert the dough mass into strings, it is forced by hand through holes in a copper sieve-like affair and allowed to fall into a kettle of boiling water placed about 2 feet below the extruder. The diameter of the strings, as they come from the sieve is about 1½ centimeters, but this diameter is reduced to about 2 millimeters by stretching. The protein appears to be either coagulated or denatured by the hot water.

In the final operation the fen-t'iao is cooled with cold water, cut into lengths of about 2 meters and hung on bamboo supports for drying. It may be artificially colored if desired.

Fen-t'iao is used in soups or mixed with vegetables, usually with vegetables that are prepared by boiling.

Fermented Soybeans

Small black soybeans are used for this particular product which is a delicious appetizer with a characteristic flavor similar to that of soy sauce. In preparing the fermented beans for table use they are usually soaked in water for an hour and cooked with vegetables or meat. The period for fermenting the beans is between October and April.

For the fermentation process sound whole beans are cleaned and soaked in water for 24 hours and steamed for 5 hours at atmospheric pressure. The beans should be soft but not mealy.

The steamed beans are spread on trays about ½ inch deep and inoculated with *Mucor* sp. and placed in a room of constant temperature of 30° C. and of high humidity. They are incubated 7 to 15 days, depending on the conditions in the room, and the chief fermentation takes place at this time.

The fermented beans are now transferred to an earthen jar and sealed. The jars are aged 6 months or longer but not more than 6 years. Some further fermentation takes place during this period and the flavor and taste improve with time of aging. The product may now be seasoned and packed in tins or paper cartons. The seasoning for 150 pounds of beans may consist of 14-15 lbs. salt, ½ to 1 oz. of spices, 4-8 oz. of wine or whiskey. The above process was described by Hi-Lieng Lin, department of agricultural chemistry, National Central University, Nanking, China.

Vinegar Fermentation Process

The persons operating the vinegar plant at Peiping spoke a Chinese dialect different from that of my interpretor, thus some language difficulties were encountered in obtaining a description of the vinegar fermentation process.

The raw materials for making vinegar were millet (apparently two varieties), wheat bran, and rice hulls. Rice hulls were used, probably, to prevent packing of the millet and wheat bran and to allow some circulation of air in the system. The yeast used to start the fermentation is sample No. 27. The fermentation was started in a shed which also housed a

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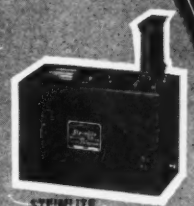

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mule next to the fermenting vat. The shed was very dirty and afforded opportunity for a considerable variety of contamination.

The ground raw materials are placed in a fermenting vat or barrel of about 50-gallon capacity with a generous amount of yeast or starter, but with only water enough to moisten the grain. The fermentation proceeds rapidly and the bottom of the barrel becomes quite warm. To prevent overheating of the mash, it is transferred to another barrel and salt is added. The transfer of the materials serves also as a means of mixing the batch. The salt added was measured as "three dishes," which I estimated as 3 to 4 kilograms for the 50-gallon barrel which was supposed to produce 500 pounds of vinegar.

The time of fermentation varies with conditions and may last as long as 30 days. At the end of the fermentation the vat is transferred to an open courtyard for exposure to the sun. The time for aging is rather indefinite but apparently it lasts for several months. There is no free liquid apparent in the system during the aging period.

After aging, the vinegar is leached from the mash with water—enough water to obtain about 500 pounds of vinegar. It resembled in taste weak American vinegar.

It is claimed that the process for making vinegar is more difficult to control than that for making soy sauce. Apparently, the temperature during the early fermentation period may go too high or the salt may not be added at the right time.

(To be continued in April)

Yugoslavian variety grown in England in 1948. Suggested for forage and silage.

Canadian Mandarins, a 100-day variety in Canada, took 160 to mature in England.

CONDUCTS SOYBEAN TRIALS IN BRITAIN

The question of growing soybeans in the British Isles should be reconsidered, says J. C. Ferree, director of Soya Foods, Ltd., London.

He has been growing a number of varieties experimentally, from Yugoslavia, Manchuria and other countries, as well as the U. S. and Canada.

The plants shown above are a small yellow soybean from Yugoslavia and the Canadian Mandarin, both matured in 1948. The Mandarins were planted April 23 and took 160 days to mature, although their normal maturity span in Canada is 100 days. Ferree attributes the delayed maturity to an extremely bad growing season, which included frosts, and torrential rains. There was also some damage by pigeons.

The Yugoslavs were planted June 1 and made fair growth. Ferree believes they have possibilities for silage and fodder.

Ferree has also tried Lincolns and Ogdens from the U. S.

Fordson's Estates grew soybeans in Essex, England in the early 30's on a substantial scale. The crop was a success agriculturally, but not economically. At the low prices then prevailing it was cheaper to buy soybeans than to produce them in the British Isles.

But now Britain is extremely short of oilseeds for the production of proteins and fats. The British Ministry of Food has set the attractive price of 60 pounds per ton to manufacturers for soybeans.

PROTEIN QUALITY IN LIVESTOCK FEEDS

By F. B. MORRISON
Cornell University
Reprinted from
Western Livestock Reporter

A few years ago we conducted five separate experiments at Cornell University to find whether quality of protein was of any importance for high-producing dairy cows fed the usual roughage combination of hay and corn silage. Each year one group of cows was fed a concentrate or grain mixture which supplied as poor quality protein as possible and yet be made up of ordinary dairy feeds. This mixture was ground corn, ground oats, corn gluten meal, and corn gluten feed, with cane molasses in addition in two of the trials. The cows were also fed mixed hay low in legumes and corn silage for roughage.

Each year another group of cows were fed the same hay and silage and a grain mixture which supplied protein of much better quality. This mixture contained soybean oil meal, linseed meal, cottonseed meal, distillers' corn dried grains, corn gluten feed, ground corn, and ground oats, with or without molasses.

For swine or poultry this mixture would unquestionably have given decidedly better results than the first one. However, for our good dairy cows there was no difference in the results on the two rations.

That the quality of protein may be of some importance when dairy cows are fed only poor-quality roughage is indicated by an early Wisconsin experiment in which corn stover was the only roughage and by Scotch experiments in which straw was the sole roughage.

In four experiments we conducted a few years ago at Cornell University with fattening yearling steers full-fed on corn grain, we secured somewhat different results than in the experiments with dairy cows. In these experiments we compared soybean oil meal, linseed meal, ground raw soybeans, and corn gluten meal as protein supplements to balance a ration of corn grain, corn silage, and a small allowance of mixed hay (only 2 pounds per head daily).

When thus fed, corn gluten meal, which supplies protein of poor quality, was very definitely inferior to the other supplements, which furnished protein of better quality. It is rather probable that this was due to the fact that fattening cattle full-fed on corn grain eat much less roughage than do dairy cows.

We have also recently conducted at Cornell experiments with fattening lambs, similar to the trials with fattening yearling steers. While for fattening steers corn gluten meal was inferior to the supplements which furnished better-quality protein, it was equal to linseed meal or soybean oil meal for fattening lambs. This difference in results may be due to the fact that fattening lambs full-fed on grain still eat a much larger proportion of roughage than do fattening cattle which are full-fed on grain.

For Swine and Poultry

Many experiments have been conducted by the experiment stations during recent years to determine the extent to which animal-protein supplements, such as dairy by-products, meat scraps, tankage, or fish meal could be replaced by protein supplements of plant origin. These experiments have shown conclusively that soybean oil meal which has been well cooked in the manufacturing process is the best substitute for animal protein in feeding swine and poultry.

One-half or even more of the animal-protein supplements can readily be replaced by soybean oil meal, if care is taken to provide an ample supply of minerals and vitamins in the ration. Indeed, some investigators believe that soybean oil meal supplies protein of just as good quality as meat scraps, tankage, or fish meal.

However, soybean oil meal is low in calcium and only fair in phosphorus, while these animal-protein supplements are very rich in these minerals. A calcium and phosphorus supplement must therefore be added when soybean oil meal replaces a considerable part of the animal-protein supplements.

Also, soybean oil meal does not supply as large amounts of certain of the B-complex vitamins, including an unknown vitamin which has been called the "animal-protein factor." For this reason, the best results are generally secured when at least a certain minimum amount of dairy by-products, meat scraps, tankage, or fish meal is included in rations for swine and poultry, unless they are on first-rate pasture.

The protein of peas supplements that of the cereal grains to a considerable extent, but not so completely as does the protein of soybean oil meal. This is because peas are low in methionine, the essential sulfur-containing amino acid.

CENTRAL EXCHANGE BENEFITS PRODUCER

America has experienced a great agricultural achievement by producing more than one-third the total soybean crop of the world this past year. This was pointed out by Richard F. Uhlmann, president of the Chicago Board of Trade, who addressed the grain marketing session of the 48th Annual Farm and Home Week Program sponsored jointly by the University of Illinois College of Agriculture and the Illinois Farmers Institute, at Champaign, Ill.

While Uhlmann declared he could not prove how consumption would have been affected in the absence of free, open, and competitive markets for the bean, the soybean industry has benefited markedly from the great central exchanges where the crop is marketed. "It is a fact that the margin between buying and selling prices must have been narrower than if the merchant had been compelled to assume the additional risk of price "fluctuation" so characteristic of a marketing situation without any central exchanges.

"I say this advisedly," Uhlmann continued, "because of my own experience in handling large quantities of milo and sorghums and the fact that there was no way to protect one's self against sharp price changes, we simply required a larger margin of profit or we could not have stayed in business.

"Nobody can be sure whether demand will fully keep pace with supply should some of the Asiatic countries again have a surplus, but it is fair to say that if we do have larger reserves at some future time and a bigger carryover from one crop to the next, that processors will look much more eagerly towards hedging facilities than they have in the past. This would be particularly true if support levels were reduced during a period when the trade was predominantly in a long position and everybody felt that he had to sell at once."

—s b d—

GRAIN DEALER HELD

Edgar VanZant, Paris, Ill., grain dealer, entered a plea of not guilty to a charge of grand larceny in a circuit court at Newport, Ind., February 7 following his arrest in connection with the disappearance of from 80,000 to 100,000 bushels of soybeans from the six elevators that he operates in Illinois and Indiana.

The specific charge is that of taking 282 bushels of soybeans, valued at $564 from Harold Wisehart, Clinton, Ind., farmer.

A petition of involuntary bankruptcy was filed by three of Van Zant's farmer-patrons in the U. S. Circuit Court at Danville, Ill., January 14. Farmers of the area claimed they had stored between 80,000 and 100,000 bushels of soybeans in the VanZant elevators in the fall of 1948, and that most were removed without report to the owners, according to the *Danville Commercial-News*.

VanZant was arrested on his return from a honeymoon in New Orleans. He asked for time to straighten out his affairs and claimed his equities are enough to pay off his creditors. The case is expected to come to trial after April 1.

FOUR STATES REPEAL MARGARINE LAWS

Margarine forces gained ground rapidly in February with repeal of margarine laws in four states. This followed legislative action in Idaho reducing margarine license fees late in January.

Major state actions in February:

TENNESSEE—First state to completely repeal its anti-margarine laws in 1949. New law repeals 10-cent per pound state tax on yellow margarine, prohibition against use of color yellow on cartons, margarine ban in institutions supported wholly or partly by state funds, and state license fees of $300 for manufacturers, $75 for wholesalers and $5 for retailers. Measure was signed February 8 by governor.

MICHIGAN—Repealed total prohibition against manufacture and sale of yellow margarine on February 14, opening way to manufacture and sale of yellow margarine without state taxes. Issue was referred to legislature by petition signed by 175,000 voters, under terms of which legislature had 40 days in which to act, this period ending at midnight, February 14. Had the legislature failed to act, the proposal would have been submitted to voters.

WASHINGTON—Bill permitting sale of white margarine without present punitive tax of 15 cents a pound passed by legislature February 9 and sent to the governor. Margarine is now unknown in all save 2 percent of state's grocery stores.

WYOMING—Repealed 10-cent per pound state tax on margarine with less than 20 percent animal fat, bill being signed by governor February 12.

Thirty-four states have repealed or modified their anti-margarine laws since 1939. Severe anti-margarine laws now remain effective in only 18 states.

In 1948, five states—Maine, Maryland, Massachusetts, Missouri and New Jersey—abolished their prohibitions against yellow margarine.

Today, legislation to repeal state anti-margarine laws is under consideration by the legislatures of nine states—California, Connecticut, Delaware, New Hampshire, New York, Ohio, Oregon, Pennsylvania and Wisconsin.

As in the Eighty-first Congress, which is expected to wipe the 63-year-old federal anti-margarine laws off the books, prospects for further favorable action in several states are bright.

The state margarine fights are being viewed with particular interest, because existing state laws, in combination with existing federal laws, now keep white margarine out of about 40 percent of the nation's retail outlets, and yellow margarine out of about 97 percent of them.

Even Wisconsin, long regarded as the prime dairy state, will be the scene of a margarine vs. butter fight. Three repeal bills have been introduced.

The outlook for repeal by Congress was never more favorable. The House committee on agriculture, for the first time in history, is considered likely to act favorably on a margarine bill. Rep. Harold Cooley (D., N. Car.), the incoming chairman, has expressed belief that the committee will approve the federal legislation. Hearings began March 1.

It is believed that the federal legislation will repeal federal taxes and license fees on margarine, and provide for sale of yellow margarine under adequate safeguards to strengthen existing consumer protection.

DELWICHE EARLY WORKER WITH SOYBEANS

Although Wisconsin is not one of the major soybean-producing states, soybeans have been under test at the Wisconsin experiment stations for over 40 years.

As early as 1914 about 100 different kinds were under trial, and over the years probably 200 strains have been tested at the Wisconsin stations.

E. J. Delwiche, professor emeritus of agronomy at the University of Wisconsin, in a recent report stated that as early as 1914 about 100 different kinds were under trial, and over the years probably 200 strains have been tested at the Wisconsin stations.

Of these, Wisconsin Black (hay), Mandarin, Manchu 606 and Flambeau are now grown in the state.

Delwiche has spent his life helping to develop the agriculture of northern Wisconsin. His particular interest has been in peas and corn. But he has also worked with soybeans and produced three bulletins on the subject, in cooperation with other men. One was published as long ago as 1914.

L. F. Graber, head of the agronomy department at the University of Wisconsin, describes Delwiche as the outstanding breeder of canning and other peas in the United States.

Delwiche sensed the need for shelter belts on sandy soil and designed the experimental farm at Spooner to allow a natural growth of trees to remain around each field to help prevent the soil from being blown away.

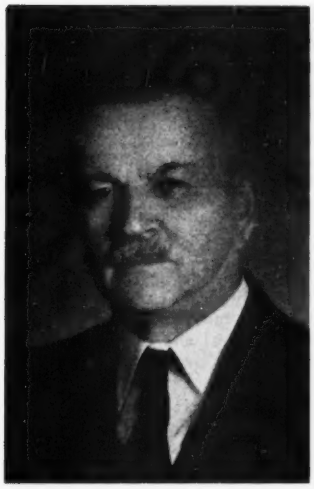
"Delwiche was also a noted breeder of corn for the short growing seasons which prevailed throughout northern Wisconsin. His early maturing Wisconsin 25 corn acquired a widespread reputation prior to the advent of hybrid corn," says Graber.

Delwiche, a native of Orbais, Belgium, was born March 25, 1874. He came to the United States in 1879; studied at Dixon (Illinois) College; continued his work in Interstate school of Correspondence of Northwestern University; graduated from the University of Wisconsin in 1906, and took an advanced degree 3 years later.

He was associated with the University of Wisconsin from 1904, successively as field assistant experiment station, superintendent branch stations, assistant professor agronomy, associate professor agronomy, professor agronomy, also superintendent branch experiment stations, president Northern Wisconsin Grain Show Association, until 1945 when he retired emeritus professor.

The farmers of northern Wisconsin have erected a plaque on a glacial boulder on the Ashland experiment station farm commemorating his work, and his achievements.

The bulletins on soybeans of which Mr. Delwiche is co-author are: Bulletin 236, *Soybeans, an Important Wisconsin Crop*, 1914; Bulletin 289, *Soybeans, a Crop Worth Growing*, 1918; and Bulletin 375, *Soybeans, a Good Legume Crop Borrowed from the Orient* 1925.



E. J. DELWICHE

Publications

MORE PUBLISHED ON TRYPSIN INHIBITOR

Two more publications have been issued by the Nebraska Experiment Station covering the research on the trypsin inhibitor in soybeans being carried on there.

The first deals with the comparative nutritive value of raw and heated soybean oil meals for turkey poults.

The trypsin inhibitor contained in one-half of a lot of soybean oil meal was destroyed by autoclaving at 15 pounds for 20 minutes.

This portion of the meal when fed at a level of 24 percent to newly hatched poults gave a significantly greater gain in 5 weeks than did an equal amount of meal in which the inhibitor had not been destroyed.

The difference in growth is attributed to the destruction of the trypsin inhibitor.

TRYPSIN INHIBITOR. VII. COMPARATIVE NUTRITIVE VALUE OF RAW AND HEATED SOYBEAN MEAL FOR POULTS. By C. W. Ackerson, Raymond Borchers and F. E. Mussehl. *Research Bulletin 156*, Agricultural Experiment Station, Lincoln, Nebr.

See also:

TRYPSIN INHIBITOR. VIII. GROWTH INHIBITING PROPERTIES OF A SOYBEAN TRYPSIN INHIBITOR. By Raymond Borchers, C. W. Ackerson and F. E. Mussehl with the assistance of Anna Moehl, departments of agricultural chemistry and poultry husbandry, Nebraska Agricultural Experiment Station, Lincoln, Nebr. *Archives of Biochemistry*, Nov. 1948.

FEEDING

Protein Level

Laying hens should receive more protein than is usually recommended for high egg production over a long period, and to cut down death losses.

This is what workers at the West Virginia Agricultural Experiment Station decided after a series of experiments that lasted 7 years. They believe it should pay to feed at least a 16 percent level of protein to laying hens.

EFFECT OF CERTAIN PROTEIN LEVELS ON EGG PRODUCTION AND MORTALITY IN WHITE LEGHORNS. By T. B. Clark, T. D. Runnels, J. H. Rietz and C. E. Weakley, Jr. *Bulletin 331*, Agricultural Experiment Station, Morgantown, W. Va.

Protein Level

Hawaiian dairymen should find it profitable to feed more concentrates than required by the Morrison standard, say feeding specialists at the University of Hawaii. They have three 15-week experiments in feeding dairy cattle to back up their conclusions.

The trials included 22 cows. It was found that feeding an additional 4.35 pounds of concentrates to cows already adequately fed according to the Morrison feeding standard resulted in 1.56 pounds of increased milk production.

With a concentrate ration consisting of 43 percent pineapple bran, 25 percent cane molasses, 30 percent soybean oil meal and 2 percent minerals costing about 31 dollars per ton, the additional feed proved profitable.

Cows consumed about 3 pounds less roughage per day when fed the increased amount of concentrates. They increased 3 pounds in weight.

Dairymen receive a high price for their milk in Hawaii and are not satisfied with less than maximum production.

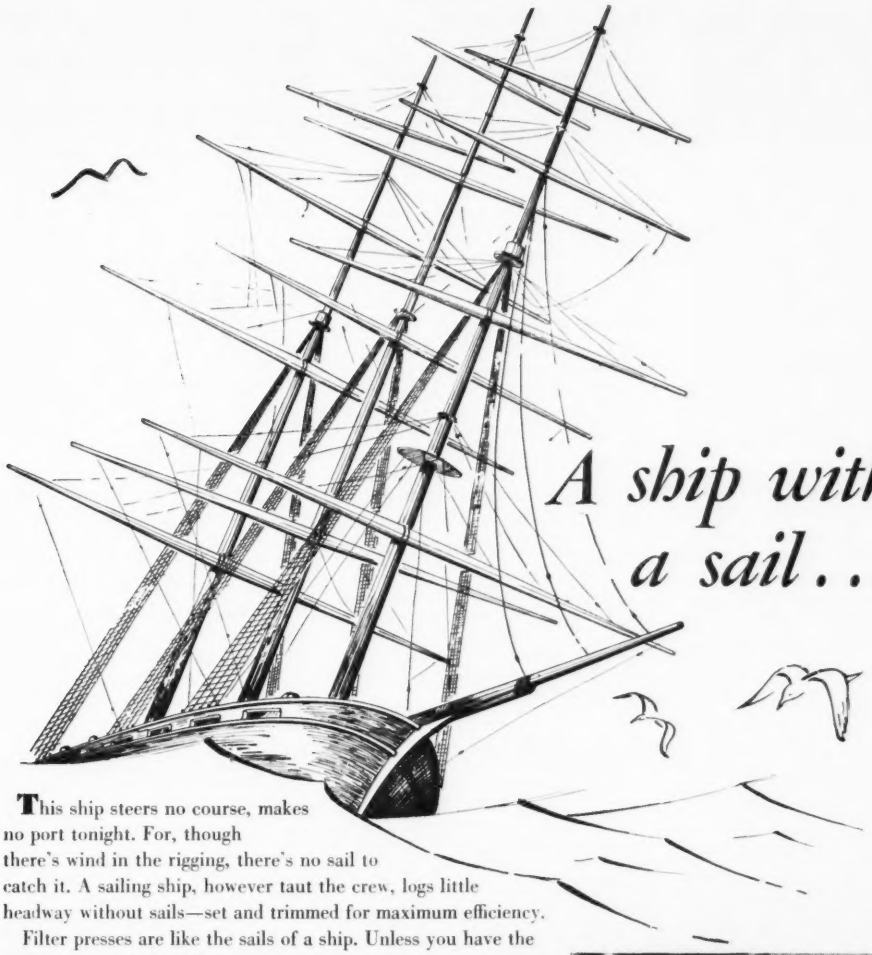
Higher than average amounts of concentrates are required in Hawaii since the roughages are coarse and low in nutrients, and concentrates fed are also lower in total digestible nutrients than those fed in the U. S.

EFFECT OF INCREASED CONCENTRATE FEED CONSUMPTION ON MILK PRODUCTION AND LIVEWEIGHT OF MILKING COWS. By L. A. Henke. *Progress Notes No. 50*. Hawaii Agricultural Experiment Station, Honolulu, T.H.

Chick Rations

Soybean oil meal as the only source of supplementary protein in a chick starting ration produced heavier chicks at 8 weeks of age than peanut oil meal or wheat germ meal, which in turn were better than cottonseed meal and corn gluten feed. Linseed oil meal was not satisfactory.

Replacing one-half of the protein of the various vegetable protein concentrates with soybean oil meal protein improved the growth so that



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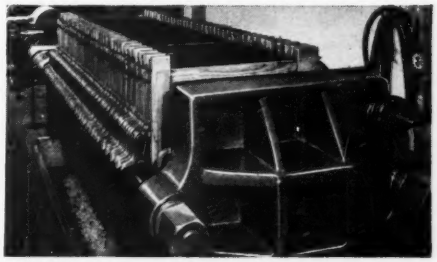

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there was little difference between them with the exception that linseed oil meal was still poor. The supplementary effect of the soybean oil meal was greater for cottonseed meal and corn gluten feed than for peanut oil meal and wheat germ meal.

The inclusion of 3 percent of fish meal in the rations increased the response in all lots. This effect appeared to be additive rather than supplementary, thus indicating it was not due chiefly to amino acids. Various combinations of fish meal, soybean oil meal, peanut oil meal, wheat germ meal, cottonseed meal, corn gluten feed and linseed oil meal resulted in average weights which were classified as good, medium and poor. All diets classified as good included fish meal.

Mortality varied with the different diets but was generally lower in the lots which showed better growth. However, livability seemed to be favorably improved by fish meal, peanut oil meal and wheat germ meal. Less feed per gram of gain was required on the rations showing good growth. The inclusion of fish meal or soybean oil meal in the ration increased feed efficiency. The increase due to soybean oil meal was more marked when the rations contained cottonseed meal or corn gluten feed than when they contained peanut oil meal or wheat germ meal.

VEGETABLE PROTEIN CONCENTRATES. By G. F. Heuser, L. C. Norris and J. McGinnis, Cornell University. *Flour and Feed*, Sept. 1948.

Effect of Autoclaving

Autoclaving soybean oil meal at high temperatures or for long periods of time decreases the availability of the lysine it contains for growing chicks and turkey poults.

Two types of inactivation of lysine apparently take place, one a destruction of the lysine, and the other a binding of the lysine in such form that it is not liberated by digestion *in vivo* or by enzyme hydrolysis *in vitro* but is liberated by acid hydrolysis.

Workers at Michigan State College made a recent study of the two types of heat inactivation of lysine. They found that when soybean oil meal was autoclaved for 4 hours about 40 percent of the lysine in the meal was destroyed. Another 20 percent was converted to a form from which it could be freed by hydrolysis.

STUDIES ON THE HEAT INACTIVATION OF LYSINE IN SOYBEAN OIL MEAL. By Robert John Evans and Helen A. Butts, department of agricultural chemistry, Michigan State College, East Lansing, Mich. *Journal of Biological Chemistry*. Aug. 1948.

Whole Soybeans

The feeding of whole soybeans and of soybean oil to cows in an experiment at Iowa State College reduced the carotene in the blood plasma 10 to 40 percent as compared to cows not receiving the soy products.

The raw soybeans depressed the carotene levels more than the soybean oil. The differences in the vitamin A content of the plasma were small.

EFFECT OF RAW SOYBEANS AND OF SOYBEAN OIL ON PLASMA CAROTENE AND ON VITAMIN A AS MEASURED BY ACTIVATED GLYCEROL DICHLOROHYDRIN. By R. L. Squibb, C. Y. Cannon and R. S. Allen. *Journal of Dairy Science.*

Cystine and Soybeans

The value of adding cystine to raw soybeans in the pig ration has been demonstrated. A North Carolina experiment shows that the addition of cystine to two basal diets each employing raw soybeans is of value. The two diets were:

1. 49 percent ground raw soybeans, 49 percent starch, and 2 percent of an adequate mineral mixture.

2. 98 percent ground raw soybeans and 2 percent minerals.

The supplemental values of cystine and a mixture of thiamine, riboflavin, niacin, pyridoxine and calcium pantothenate, alone and in combination, were tested on both basal rations.

The effect of cystine was significant under all conditions of the experiment, and this effect was not greatly changed by the basal diet that it supplemented or by the presence or absence of B-complex.

The feeding of raw soybeans to pigs in a practical ration is not recommended.

CYSTINE AND VITAMINS OF

THE B-COMPLEX AS SUPPLEMENTS TO RAW SOYBEANS IN PIG RATIONS. By W. J. Peterson, R. E. Comstock, H. A. Stewart, E. H. Hostetler and F. H. Smith, North Carolina Agricultural Experiment Station. *Journal of Animal Science*, Vol. 7, No. 3, pages 341-350.

MISCELLANEOUS

Hybridization

Hybridization followed by selection in segregating populations is the most promising method of obtaining new and improved varieties of soybeans. Several outstanding soybean varieties have been developed by this method, and many promising selections from crosses are now in the early stages of testing in regional trials.

However, there are features about the use of hybridization in soybean improvement that need clarification. A large number of crosses between varieties and strains of this crop have failed to produce desirable combinations in the resulting segregates.

R. R. Kalton has reported on his work with soybean hybridization while he was at the Iowa Agricultural Experiment Station in *Research Bulletin 358*, just issued at Ames.

Bulk F_2, F_3 and F_4 populations of 25 soybean crosses were grown in replicated trials in successive years and evaluated for seed yield, date of maturity, plant height and lodging resistance in comparison with three of the parental varieties.

Kalton concludes that neither the bulk nor the pedigree method of early generation testing in soybean crosses provides much information, at least not before the F_4 generation, on the potential yielding ability of subsequent selections.

Kalton is now associated with Texas Research Foundation at Renner, Texas.

BREEDING BEHAVIOR AT SUCCESSIVE GENERATIONS FOLLOWING HYBRIDIZATION IN SOYBEANS. By Robert R. Kalton. Agricultural Experiment Station, Ames, Iowa.

Foaming in Beer

Soy flour with high protein helps to maintain foam stability in beer, reports Benno Lowy of Pacific Chemical Laboratories.

It has been proved that the albumin content of beer is a major factor in foam retention, he says. Cereal adjuncts with low albumin do not add to foam stability. During the war when starchy substitutes were in vogue the foam retention due to low extract suffered considerably.

PROBLEMS ON FOAM RETENTION IN BEER. By Benno Lowy, Ch. E., Pacific Chemical Laboratories, in *West Coast Brewer*, Dec. 1948.

Soybean Glue

GLUING PROPERTIES OF VARIOUS SPECIES WITH A SOYA BEAN ADHESIVE AND THE INVESTIGATION OF OPTIMUM PROPORTIONS OF LIME AND CAUSTIC SODA. By K. F. Plomley. *Progress Report No. 1* Dec. 1947. Council for Scientific and Industrial Research. South Melbourne, Australia.

GRITS and FLAKES... FROM THE WORLD OF SOY

Chemical plants division of Blaw Knox Co., Pittsburgh, has received a contract from the Soyafeed & Oil Corp., East St. Louis, Ill., to design and construct a modern 200-tons-per-day solvent extraction plant for soybeans. The plant is scheduled for completion in time to handle the fall crop.

* * * *

Construction of a new solvent extraction plant employing French Oil Mill Machinery Co. equipment at Marion, Ohio, to replace the smaller screw press plant is announced by Central Soya Co., Inc., Fort Wayne, Ind. The new plant is expected to be in operation to handle the 1949 crop.

* * * *

L. F. Wiegand, who has been Eastern sales manager of the feed division of the A. E. Staley Manufacturing Co. for many years, has been named sales manager of the Painesville, Ohio, branch. He succeeds J. D. Douglas. His post as Eastern sales manager will be taken by K. D. Stempson, who has been with the company at Decatur, Ill.

* * * *

The appointment of Richard P. Lapham as a feed sales representative of A. E. Staley Manufacturing Co., Decatur, Ill., has been announced. Mr. Lapham, who makes his home at Parma, Mich., will serve Staley's customers in Michigan, northern Indiana and western Ohio.

* * * *

A. E. Staley Manufacturing Co., Decatur, Ill., has appointed Ruthrauff & Ryan, Inc., advertising agency of Chicago, Ill., to handle its soybean advertising.

* * * *

Homer V. Howes, vice president and director of sales of Bemis Bro. Bag Co., was elected president of the Textile Bag Manufacturers' Association at the group's annual meeting held recently in New Orleans. He succeeds F. H. Ludington, president of Chase Bag Co.

* * * *

Three salesmen of McMillen Feed Mills division of Central Soya Co., Inc., were made members of the firm's "Wildcat Club" for outstanding sales records in 1948. They are Tom Rast, Lee Higgins and Clyde W. Thompson.

* * * *

D. W. Dauler has been appointed director of education and sales training of McMillen Feed Mills, division of Central Soya Co., Inc., Fort Wayne, Ind. He will also continue as manager of the specialty feeds department.

* * * *

Members of 4-H or FFA units who are undertaking calf or hog projects this year will be eligible to receive better feeding awards offered by Archer-Daniels-Midland Co. and Archer dealers.

* * * *

R. H. Horsburgh, 65, retired vice chairman of the board of the Glidden Co., died at Cleveland of a heart attack recently. He was one of the original group of associates who aided Adrian D. Joyce in founding the Glidden Co. in 1917.

* * * *

Sprout, Waldron & Co., Muncie, Pa., announces the addition of a new Model C-G Hammermill designed specifically for custom grinding. The model is described in BULLETINS C-G-948 and CGD-948.

* * * *

Ralph G. Golseth, vice president in charge of the soya products division of the Glidden Co., has been elected a director of the company. He began his career with Cargill, Inc., and joined Glidden in 1945 as assistant vice president in the soya products division.

* * * *

Link-Belt Co., Chicago 1, Ill., offers an 8-page illustrated BOOK NO. 2299 *describing their new high-speed elevator bucket for handling free-flowing materials, especially grain.*

* * * *

Kraft Foods Co. will erect a new building on the western side of their

JOINS GLIDDEN

IAN L. CARMICHAEL

Ian L. Carmichael has been named national accounts department manager for the Glidden Co.'s paint and varnish division, A. D. Duncan, Glidden vice president, announces.

In his new capacity Mr. Carmichael will coordinate the sales of paints and varnishes to national concerns. He will maintain his headquarters in Cleveland.

A graduate of Colgate University in 1936, Mr. Carmichael was associated with the General Electric Co. until 1940, when he joined the Gillmore Carmichael Olson Co., a firm in which his father was a partner. During the war he served in the Navy for 21 months and after being discharged as a lieutenant (j.g.), formed his own business, Pallet Systems, Inc. He was president of the company until his appointment to his present position with Glidden.

BREWERY USE

Soybeans and soybean products used by the brewery industry in the production of fermented malt liquors totaled 4,126,934 pounds in 1948, compared with 4,885,118 pounds in 1947, reports *Modern Brewery Age*. Soy products used by the industry in October totaled 321,648 pounds.

TWO THRIFTY POWER PLANTS for the SOYBEAN GROWER

MODEL C *Seal-Greased* **TRACTOR**

Servant of the whole farm family, the Model C 2-Row Tractor is a mobile power plant on rubber, one of the sweetest cultivating tractors ever built.

If Son is a mechanical-minded young engineer in overalls, here's his tractor. Simplicity itself . . . there's not a grease-fitting on it.

The Model C is a full-size completely equipped tractor . . . with lights, starter, low-pitch muffler, air tires, radiator heat control, battery, cushion seat and backrest. Power Transmitter, including hydraulic lift, power take-off and belt pulley, is optional at small cost.

The Model C is yours, with a matching line of hydraulic-control implements . . . if you see your A-C dealer promptly.

MODEL B *Economy Champion*

If your farming does not require two-row planting and cultivation, the lower cost one-row Model B gives you all the steamlined features and performance of the Model C, with the additional economy of single-row implements.

Front-mounted fertilizer attachments for both B and C tractors side-dress fertilizer while you cultivate or plant.

ALLIS-CHALMERS
TRACTOR DIVISION — MILWAUKEE 1, U. S. A.

headquarters at 500 Peshtigo Court, Chicago. It will house equipment especially designed by Kraft engineers to further improve the quality of vegetable oils purchased for use in salad dressings and mayonnaise.

* * * *

The board of directors of the Chicago Board of Trade has reelected James B. Forgan, vice chairman of the board of the First National Bank of Chicago, as treasurer of the Board of Trade.

* * * *

Production costs and plant efficiency were topics discussed by managers of all major divisions of the Glidden Co. at a manufacturing and research meeting in Cleveland recently. An address by Board Chairman Adrian D. Joyce opened the meeting.

* * * *

ILLINOIS FARM ACREAGE CENSUS 1947, *issued by Illinois Department of Agriculture, Springfield, Ill., lists soybean acreage by counties for 1947. Total 1947 acreage of soybeans for beans in Illinois was 3,623,175.*

* * * *

Everette B. Harris has been appointed secretary of the Chicago Board of Trade to fill the vacancy caused by the recent death of Wm. B. Bosworth. His affiliation was effective March 1. He has been associated with Mandel Bros. the past 3 years.

* * * *

Burrows Equipment Co., Evanston, Ill., has appointed Bill Rose to act as the firm's Iowa representative. He is well known to the trade in the Midwest, having been associated with the Borden Co., the Shellbuilder Co., Houston, Texas, and for a number of years actively engaged in the equipment field.

* * * *

Mel Darack, treasurer Dirigo Sales Corp., Boston, Mass., has acquired the interest and franchise of John Clugston, Belmont, Mass., exclusive agent in New England for Spencer Kellogg & Sons, Inc., soy flour products.

* * * *

A. E. Staley Mfg. Co., Decatur, Ill., achieved a lost time accident frequency rate of 4.8 accidents per million man hours in 1948, the lowest in the firm's history. Best previous record was in 1947, 7.5.

* * * *

Union Special Machine Co., Chicago, has issued a new descriptive bulletin, No. 200, on its equipment for closing filled textile and paper bags. The brochure gives complete information about Union Special sewing heads, columns, tables, conveyors and accessories.

* * * *

Directors of the National Grain Trade Council reelected Harold E. Sanford of Portland, Ore., as chairman and elected Carl E. Bostrom vice chairman at their annual meeting in Chicago Feb. 9. William F. Brooks was reappointed executive secretary.

* * * *

"Bread's Other Spread," is title of an article about margarine in Canada

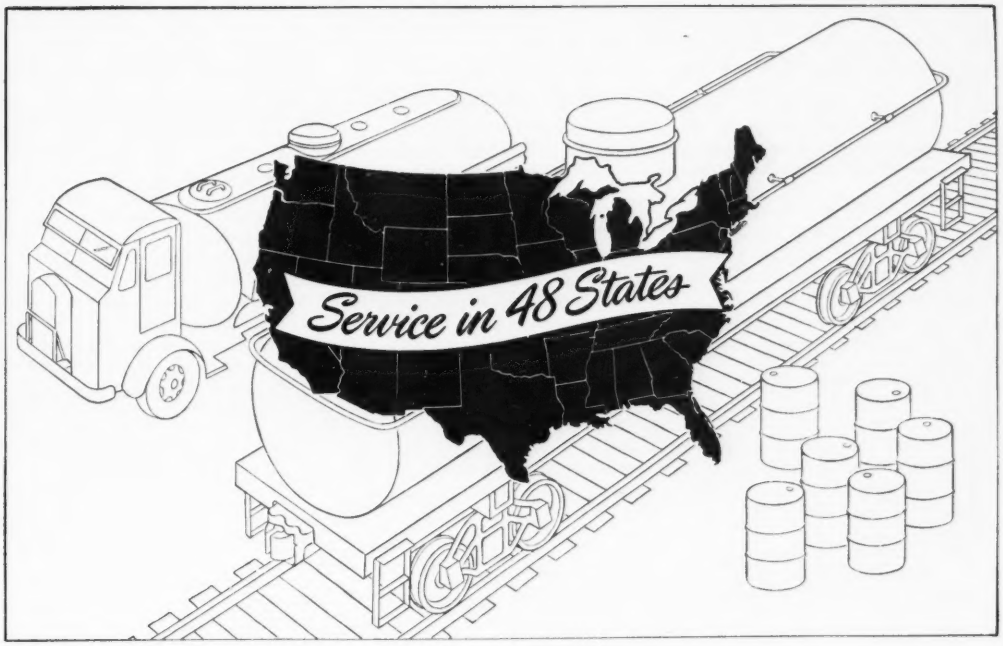
LARGE SOY FOOD TRADE

Mrs. Eleanor Wuest with an assortment of her soya products.

What is now a $50,000-a-year business in soy food products in New York City began only a few years ago on an ordinary kitchen stove with an investment of $2.49.

That is the story of Mrs. Eleanor Wuest and her husband, Gebhart P. Wuest, of Wuest Laboratories, Inc., 225 10th Ave., New York, N. Y. They have developed a large trade in specialty baked goods including a number of soy loaves.

A product that has attracted much attention is their vacuum packed 5-grain bread. It contains 25 percent soy flour and coarsely ground rye, wheat, barley, oats and rye bran. It will keep indefinitely under most



Some profit-making reasons for using Amsco extraction solvents

Amsco offers you an almost unlimited choice of extraction solvents, backed by a 25-year record of dependable performance and quick, expert service. Amsco can deliver your order promptly anywhere in the United States.

Here are four more *sound, profit-making* reasons why Amsco is an acknowledged leader in the extraction solvent field:

1. ***Amsco's high, fast rate of extraction.***
2. ***Low solvent losses—due to close distillation, high initial boiling point, low dry point.***
3. ***Freedom from objectionable residue and odor.***
4. ***Amsco's famous "Service that goes beyond the sale."***

Let us solve your solvent problem. For complete information, mail the attached coupon today.

THE MOST COMPLETE LINE OF PETROLEUM-BASE SOLVENTS AVAILABLE

Amsco products constitute the widest variety of petroleum solvents available. Every one of them, from oldest to newest, must measure up to the company's 25-year reputation—a reputation for uniform high quality, for prompt service, and for an eagerness to develop new products to meet industry's ever-changing demands.

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Please send information on the complete line of Amsco petroleum-base solvents to:

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Company.....

Street Address.....

City and State.....

(Samples sent on request)

by C. Fred Bodsworth in Feb. 1 *Maclean's Magazine*. He predicts the big four of margarine oils in Canada will be soybean, cottonseed, coconut and peanut, in that order of importance.

* * * *

H. E. Carpenter, president of the Lexington Soy Products Co., Lexington, Ohio, announces the purchase of an Anderson solvent extraction unit for installation in conjunction with his present Expeller plant.

* * * *

Election of James M. Elliott and Ralph P. Lewis to the board of directors of Lever Bros. Co., has been announced by Charles Luckman, president. Elliott is president of the John F. Jelke Co., Chicago, and Lewis is president of Harriet Hubbard Ayer Co., New York, both Lever subsidiaries.

* * * *

Elton Kile, Fred Kile & Sons, Kileville, Ohio, is reported as having been under treatment at Mt. Carmel Hospital at Columbus, Ohio.

* * * *

Link-Belt Co. announces the appointment of J. H. Oakes as sales manager, enclosed drives, with headquarters at the company's Philadelphia plant. He will be assisted by Harry F. Kurtz as representative, enclosed drives, with headquarters at the Pershing Road plant in Chicago.

* * * *

Richard H. Koehler has been appointed advertising manager of the Stearns Magnetic Co., Milwaukee 4, Wis. He succeeds Hugh Sharp.

* * * *

Appointment of the C. L. Crabb Co. as brokers for the industrial products of A. E. Staley Manufacturing Co., in Atlanta, Ga., has been announced. The new broker will service Staley products to all customers except those in the textile and paper industries.

* * * *

Lunsford E. Cox, formerly production manager of the Indianapolis bag factory of Bemis Bro. Bag Co., has been transferred to the Bemis Kansas City plant as assistant to the manager. He started with the company as a salesman in 1933.

* * * *

Victor Oliver, formerly with Superior Separator Co., has been named as the new S. Howes Co. representative at Minneapolis. Ted Badenoch, formerly with Hart-Carter Co., has also joined Howes. He will replace the late Phil Grotevant in the Chicago sales territory.

* * * *

Dale T. Bush has joined the industrial products sales staff of A. E. Staley Manufacturing Co., Decatur, Ill. He will work out of the Chicago office.

conditions. Their breads are high in protein and minerals due to the soy flour and unrefined cereal flours used.

The enterprise started in a most modest way during the war. Mr. Wuest is a cereal chemist with clients among the big bakers and millers of the country. Mrs. Wuest was an interior decorator with a job in Rockefeller Center when the war started. Her husband lost his assistant to the draft and could not find another. So she quit her job to help him. She started a little food store in the corner of his laboratory as something to do in her spare time.

He became interested in the nutritive qualities of soy flour then being stressed both by the federal government and the New York Emergency Food Commission.

The Wuests worked out the formula for their first soy loaf in 1943. It was sponsored by the Emergency Food Commission of New York and was served at the famous soy food luncheon given by Governor and Mrs. Thomas E. Dewey.

Other loaves followed when the baked goods found an immediate demand and an outlet through New York City retail stores. Needless to say, the business soon outgrew the kitchen stove.

She now has a small retail shop in Tudor City to sell Wuest products and related delicacies.

OPEN MEMPHIS PLANT

The newly acquired feed plant of Swift & Co., Memphis, began operations the first part of March.

O. H. Coay, formerly with the Southeastern Feed Sales, Atlanta, Ga. is manager. J. R. Perry, formerly of the Swift feed division, Chicago, Ill., is assistant manager, and W. N. Cox, superintendent.

WASHINGTON Digest

By PORTER M. HEDGE

Washington Correspondent for The Soybean Digest

PRICE FORECAST. Some pick up in the price of soybeans is expected this spring and early summer now that for all practical purposes export controls have been removed.

Approval of European aid funds by around April 1 is expected to give some stimulus to the soybean market.

European countries are said to be anxious to get soybeans. They fit well into the European recovery program. The seed can be crushed in European mills, with European labor, and the meal recovered.

As the situation stands now, European aid countries are about like a worker before pay day. Their money is spent or committed, but there'll be another check coming soon.

Congress is taking up both the April-June, 1949, and the fiscal year 1950 ECA appropriation in one bill. It will get this out of the way about the end of March. No really sharp cuts are expected.

ECA countries will then know where they stand financially, as far as U.S. aid is concerned, for the next 15 months. ECA can start writing checks again as soon as the new appropriation is approved.

It's at this time when European spending is figured to become more effective in the U.S. soybean market.

Soybeans and other edible fats and oils have been on "general license"—no limit on exports except to Iron Curtain countries—since the second week in February.

In approving extension of export control legislation, Congress was given assurance that controls on farm exports would be exercised by the Secretary of Agriculture.

It also provided that any farm commodity be excluded from export controls when the Secretary finds it to be in excess of domestic requirements.

MEAL EXPORTS. Removal of oilseed meals from export controls is expected most any time. It's been under consideration in the departments of agriculture and commerce for several weeks.

Most officials doubt that decontrol would have much, if any, effect on meal prices. Exports are moving slowly. Not all the 225,000 tons allocated since last October has been taken to date.

Meal will be in surplus this spring and early summer. Latest unofficial estimate is that around 400,000 to 500,000 tons will be available for export over domestic requirements, for the year as a whole.

Some effort is being made to get European countries to stockpile meal this summer. But there are no indications so far that anything like 400,000 tons will be shipped this season.

USDA PROGRAM. Department of Agriculture is due to announce its 1949 price support program for soybeans by end of this month.

Continuation of the same 90 percent of parity support rate for this year's crop is expected, though officials won't commit themselves to it.

Allowing for a moderate drop in the general price level between now and next September, a 90 percent of parity support would amount to approximately $2.09 a bushel, compared with $2.18 for the current season.

USDA is asking for a national soybean goal this year of 10,314,000 harvested acres—the same as 1948, but slightly under the previous five years.

At a 5-year average yield, the goal would produce a 1949 crop of 194 million bushels—2 million above the average production for 1943-47. In its goals announcement, USDA said:

"Requirements for soybeans for beans are expected to continue large. Production of soybeans should be maintained at a high level.

"In recommending the goal to farmers, however, the department points out that soils in some sections of the Cornbelt, where soybeans or corn have been grown continuously for several years, show deterioration

from a depletion of humus.

"This condition calls for a return to better balanced rotations, including green manure and sod crops. Individual farmers should consider these factors carefully, and the seeded acreage of soybeans in 1949 should be obtained, in so far as possible, on farms where these problems are least likely to be serious."

STOCKS REPORT. The USDA report of soybean stocks on hand January 1 appears to be off some 10 million bushels—approximately the same as the amount of soybeans under loan and purchase agreement.

The report showed stocks of approximately 180 million bushels. It indicated a disappearance for the October-December period of only 44 million bushels.

Soybean crushings alone amounted to 46.7 million bushels. Actual disappearance appears to be at least 10 million bushels more than indicated by the stocks report.

January stocks figures are frequently off. Normally, the difference wouldn't have caused much attention. But with the report coming out on the eve of the February break in prices, it caused a little official concern.

Crop Reporting Board officials recognized the error, but could do nothing about it after the report was issued. They had to use the figures available to them at the time.

They say there is no evidence to indicate that the report on 1948 soybean production is off significantly. The biggest discrepancy seems to be in the report on farm stocks.

There is a possibility that soybeans under loan and purchase agreement programs may have been counted twice. Next report on farm stocks of soybeans is due in the general crop report to be issued April 11.

MARGARINE. Repeal of federal taxes on margarine is due this spring. Hearings on repeal have just been held, and there are enough votes to carry it in both houses.

About the only restriction apt to be left on margarine is to require that servings in public eating houses be so labeled.

PEANUT ALLOTMENT

The national peanut acreage allotment for 1949 is 2,611,367 acres, reports Production and Marketing Administration. This is 22 percent below the 3,340,000 acres harvested in 1948, but slightly above the 1937-46 10-year average.

Each farmer who harvests within his acreage allotment will be eligible for price support on his 1949-crop peanuts at 90 percent of parity.

The increased demand for food and oil during the war resulted in an increase in peanut acreage and an expansion in the peanut growing area. In the 10-year period 1937-46, the United States peanut acreage averaged 2,531,000 acres, and production averaged 1,750,718,000 pounds. In 1947 the acreage of peanuts had increased to 3,389,000 acres and production to 2,187,000,000 pounds.

To bring peanut production in line with postwar demand, peanut growers voted to adjust peanut acreage and to put marketing quotas in effect for the years 1948, 1949, and 1950. By proclamation of the Secretary of Agriculture, marketing quotas were declared effective for 1949.

Face-Lifting Job by Woodson-Tenent

This is a partial view of the main laboratory of Woodson-Tenent Laboratories, Memphis, Tenn., which was remodeled and redecorated in advance of the bumper crops of soybeans and cottonseed last fall. You see some of the ovens on the left wall. On the left rear is the miscellaneous department for analyzing feeds, fertilizers and Vitamin A. In the rear center is the enlarged oil refining department with a capacity of 150 refinings daily. The special refrigerator is for cooling oils. On the left (standing) is O. E. Wilkins, chief chemist, at the Spectrophotometer color grading instrument. Down the center is the balance table. The company was organized in 1935 and has analyzed more than 800 million dollars worth of products from all parts of the country.

--- MARKET STREET ---

We invite the readers of THE SOYBEAN DIGEST to use "MARKET STREET" for their classified advertising. If you have processing machinery, laboratory equipment, soybean seed, or other items of interest to the industry, advertise them here. Rate: 5c per word per issue. Minimum insertion $1.00.

FOR SALE—Anderson Expellers all models, as is or rebuilt for specific materials. Pittock & Associates, Moylan, Penna.

FOR SALE—Certified hybrid seed corn, Clinton oats, Hawkeye & Lincoln soybeans. Farmer agencies available. J. R. Spar & Son, Ada, Ohio.

FOR SALE—Indiana state blue tag Certified Hawkeye soybean seed. Edward Lehman, Wolcott, Indiana.

TWENTY YEARS EXPERIENCE processing and milling soybeans for industrial, commercial and edible purposes. Generous exposure to feed manufacturing. Available short notice. Write TH, Soybean Digest, Hudson, Iowa.

SEED DIRECTORY

A charge of $1 will be made to subscribers for listing in the April issue. Quantity for sale and variety are included.

ARKANSAS

Burdette—Hale Seed Farms, 7,000 bu. certified Ogden.

Scott—Robert L. Dortch Seed Farms, Grade A certified Dortchsoy 2, Dortchsoy 7, Dortchsoy 31.

ILLINOIS

Anchor—Elmo Meiners, Meiners Grain & Coal, 800 bu. certified Hawkeye.

Annawa—Mell Powell, 500 bu. certified blue tag Hawkeye.

Armington—Raymond Schmidgall, 625 bu. certified Hawkeye.

Atlanta—Mountjoy Hybrid Seed Co., 1,000 bu. certified Hawkeye.

Bethany—Curtis Camic, Rt. 2, 200 bu. certified Hawkeye.

Blue Mound—George Hadden, Rt. 2, 500 bu. certified Hawkeye, purity 99.7 in 2-bu. bags.

Charleston—Dale C. White, Rt. 2, 200 bu. certified Hawkeye.

Chenoa—Clifford W. Gentes, certified Hawkeye.

Concord—C. Otto Nickel, 625 bu. certified Hawkeye.

Fairbury—Fairbury F. F. A., high school, 400 bu. certified Hawkeye.

Fairbury—Douglas Kinzer, Rt. 1, 425 bu. certified Hawkeye.

Fithian—James R. Marron, Rt. 1, 400 bu. certified Hawkeye.

Manteno—James J. Gorman, 300 bu. certified Hawkeye.

Hoopeston—Russell Bros., 250 bu. certified Hawkeye.

Laura—F. M. Oakes, 850 bu. certified Hawkeye.

Maple Park—Lowell D. Oranger, Rt. 2, 1,200 bu. certified Hawkeye.

Mendota—S. F. Beetz & Sons, Rt. 1, 250 bu. certified Hawkeye.

Monee—Arthur Sippel, 500 bu. Hawkeye.

Monmouth—Ralph Wells & Co., 600 South 3rd St., 1,200 bu. certified Hawkeye; 1,600 bu. certified Lincoln; 1,900 bu. certified Mindo oats; 500 bu. certified Benton oats.

Monmouth—Perry W. Beal, Rt. 3, 500 bu. certified Hawkeye.

Orland Park—James Tilsy, 167 St. and 118 Ave., 1,000 bu. certified Hawkeye; 600 bu. certified Lincoln; 300 bu. certified Earlyana.

Palatine—Wm. Rohlwing, Rt. 1, 200 bu. certified Hawkeye.

Plainfield—Graeme Stewart, Willow Gate Farm, Rt. 1, 700 bu. certified Hawkeye.

Pontiac—Pike Hybrid Corn Co., carload lots certified Hawkeye.

Potomac—Richard E. Holt, State blue tagged certified Hawkeye soybeans. Purity 99.7%. Germination 96%.

Princeville—Rolling Acres Farms, Rt. 1, 850 bu. certified blue tag Hawkeye.

Princeville—Dana Stewart, Stewart Hybrids, 400 bu. certified Hawkeye.

Rossville—William W. Foreman, Rt. 1, 250 bu. certified Hawkeye in 2-bu. bags.

Roseville—Samuel E. LaGrow, Box 384, 1,000 bu. certified Hawkeye.

Roseville—V. T. Twomey, Rt. 1, 2,000 bu. certified Lincoln.

San Jose—Kelly Seed Co., 3,500 bu. certified Lincoln; 6,000 bu. non-certified Lincoln; 2,200 bu. non-certified Richland; 600 bu. non-certified Bavendar; 5,500 bu. certified Hawkeye.

Sciota — G. Wayne Welsh, 1,000 bu. certified Hawkeye.

Sciota—Max H. Welsh, 800 bu. Hawkeye eligible for certification.

Steward—Blaine Allen, 500 bu. certified Hawkeye.

Stronghurst—John Johnson, Box 19, 300 bu. blue tag certified Hawkeye in new 2-bu. bags; 275 bu. blue tag certified Lincoln in new 2-bu. bags.

Tonica—Merlin W. Lambert and Wilfred Strack, Rt. 1, 500 bu. certified and tagged Hawkeye.

Ursa—Frank W. Lewis, 800 bu. certified Hawkeye; 1,500 bu. certified Lincoln; 700 bu. certified Viking; 800 bu. certified Clinton oats No. 11.

Wellington—Donald R. Ziebart, Rt. 1, 500 bu. certified Hawkeye.

Witt—Witt Elevator, 3,000 bu. uncertified Chief; 3,000 bu. uncertified Lincoln.

Woodstock—Pell-Bari Farms, Inc., 5,000 bu. certified Hawkeye; 10,000 bu. non-certified Lincoln.

INDIANA

Anderson—Roy Scott, Rt. 5, 200 bu. certified Hawkeye, 300 bu. certified Lincoln.

Cedar Lake—Frank R. DeVries, Evergreen Farms, Rt. 1, Hawkeye soybeans; Vigo wheat; Clinton 59 oats.

IOWA

Charles City—Sar Seed Farms, 2,200 bu. uncertified Earlyana.

Hudson—Strayer Seed Farms, Bansei and Lincoln.

Remsen—Frank Lenertz, certified Lincoln, 93% germination in 2-bu. bags; 2,500 bu. certified Benton oats; 2,500 bu. certified Clinton oats; Mantalm barley.

KANSAS

Florence—Ernest Waner, Rt. 1, 500 bu. certified Hong Kong.

MINNESOTA

Faribault—Farmer Seed & Nursery Co., 56 E. 35th St., 350 bu. certified Flambeau; 1,600 bu. certified Ottawa Mandarin; 900 bu. uncertified Manchu (Wis. 606); 300 bu. certified Hawkeye.

MISSOURI

St. Louis 2—Valley Farms and Cypress Land Farms, 314 Merchants Exchange Bldg., Rickard Korean, Lincoln, Hawkeye, S100, Loredo.

NORTH CAROLINA

Oriental—Lindley Farms, 2,000 bu. Roanoke.

OHIO

Ada—J. R. Spar & Son, Rt. 1, 1,000 bu. certified Hawkeye.

Avery—J. Schlessman & Sons, 300 bu. certified Hawkeye; 800 bu. certified Lincoln; 200 bu. certified Earlyana.

Covington—Raymond Ebberts, Rt. 2, 500 bu. Ohio certified Hawkeye; 500 bu. Ohio certified Lincoln; 100 bu. Ohio certified Richland.

Findlay—Russell Bishop, Rt. 4, 600 bu. certified Hawkeye.

Milford Center—H. M. Bishop, 900 bu. certified Hawkeye.

Troy—Bert Favorite & Sons, Rt. 1, 1,000 bu. certified Hawkeye.

WISCONSIN

Osceola—I. W. Lundberg, Box 86, 125 bu. certified Flambeau.

Beloit—Edgar Huebbe, Rt. 3, 110 bu. certified blue tag Hawkeye grown from foundation seed.

—s b d—

SEED ASSOCIATION TO MEET IN WASHINGTON

The International Seed Testing Association plans to meet in Washington, D. C., during the week of May 8, 1950. This will be the first meeting of the association in the United States. The meeting scheduled to be held in 1940 was canceled due to the outbreak of war in Europe. The last meeting of the association was held in Zurich in 1937.

Serving on an organizing committee representing the International Seed Testing Association are representatives from the Netherlands, Denmark, Canada, and the United States. The United States members are M. T. Munn, head, division of Seed Investigations, Agricultural Experiment Station, Geneva, N. Y., and W. A. Davidson, chief, seed act division, Grain Branch, Production and Marketing Administration, U. S. Department of Agriculture.

—s b d—

COST OF PRODUCTION

Average per-bushel cost of producing soybeans in Champaign and Piatt Counties, Ill., in 1947 was $1.26 for farmers who kept records, reports R. H. Wilcox in *Illinois Farm Economics*.

In The MARKETS

MARKET DECLINE CHECKED

Declines in soybeans and soy products that had begun late in November continued through Feb. 9. They were affected by the general weakness in fats and oils, in grain and other farm commodities.

Then federal decontrol of all fats and oils put some strength into the market, and the trend was somewhat upward the last of the month. But some observers believe this act came too late for major effect.

The Army completed purchase of 56 million lbs. of 44 percent soybean oil meal in February. Commodity Credit Corporation bought some beans, to bring the cumulative total to 4 million bushels.

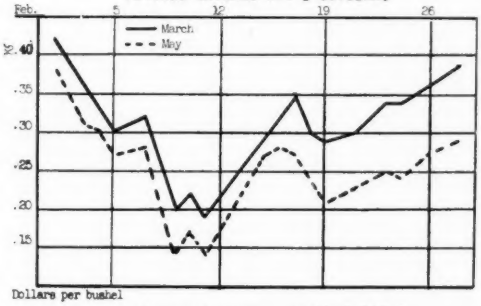
Market for soybeans was dull much of the month though it showed more strength the last week in February. Country holders of soybeans were slow to dispose of their stocks, and processors were not over-anxious buyers.

Chicago No. 2 soybeans for March opened at $2.42 and closed at $2.336, a net loss of 3.4c. Low was $2.19 Feb. 12.

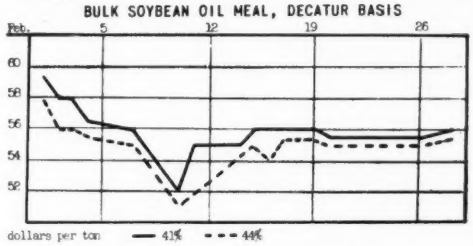
Bulk soybean oil meal Decatur basis opened at $59.50, the high, and closed at $56 for the month. Low was $51 Feb. 10.

The meal market was fairly active the last week in

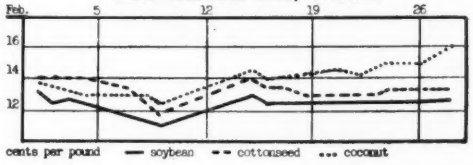
FUTURES CHICAGO NO. 2 SOYBEANS



BULK SOYBEAN OIL MEAL, DECATUR BASIS



CRUDE VEGETABLE OILS, TANKCARS



February, though a large volume did not change hands.

Forty-one percent SBOM commanded a premium over 44 percent during February.

Crude soybean oil in tank cars opened at 13.25c, the high, and closed at 12.62c. Low was 11c Feb. 9.

Refiners provided only a light demand for soybean oil, but development of a fairly good export trade and government buying after decontrol put some strength into edible oils. Trading was rather slow the last week in February.

NEW YORK SOYBEAN OIL FUTURES FEB. 28*

Close: Mar. and May 14.25B; July and Sept. 14.00B; Oct., Dec. & Jan. 12.50B. No sales. B—bid.

MEMPHIS SOYBEAN OIL MEAL FUTURES FEB. 28*

Close: Mar., flat 61.00; May, flat 55.75; Jly., 52.25-53.00; Oct., 49.25-50.00; Dec., 47.50-49.50. Sales: 1,600 tons.

*As reported by Chicago Journal of Commerce.

• SOYBEAN CRUSHINGS. Crushings of soybeans the first quarter of the 1948-49 season were the largest for any October-December quarter of record and totaled 46.7 million bushels. This is more than 5 million bushels larger than during the same quarter a year ago and 13 million bushels more than the average for the same quarter of 1942-46.

The use of soybeans for flour and grits dropped sharply amounting to only 2.3 million bushels in the October-December quarter. This compares with 4.4 million bushels in the July-September quarter, 3.4 million during October-December 1947, and 1.2 million the five-year (1942-46) October-December average. Exports of soy flour in grain equivalent totaled 3.5 million bushels in the October-December quarter, 4.8 million during July-September, and 3.4 million during October-December 1947.

With the active foreign demand exports of soybeans have been at a record rate, amounting to 4.2 million bushels in the first quarter this season. This is the largest of record for any quarter and compares with 0.6 million bushels in the first quarter of 1947-48 and 2 million in the same quarter of 1946-47. Nearly 9 million bushels of soybeans have been allocated for export in the January-March quarter.

There is an apparent discrepancy between production and stock data. Exports and crushings exceeded the total disappearance based on the estimated supplies at the beginning of the season and stocks January 1, 1949. This apparent discrepancy may be due to (1) possible duplication in coverage between several agencies reporting, and (2) differences in reporting dates of segments of the stocks. This discrepancy is expected to become adjusted by the close of the marketing season.

• FEEDSTUFF SUPPLIES. With increased production of oilseed meals, supplies of feedstuffs the first quarter of the current season were the largest of record and totalled almost 4.6 million tons. With large supplies of feed grains and slackening demand, feedstuff prices average one-third lower than a year ago. Feeding costs have declined more than livestock, dairy and poultry products with the result that feeding ratios are more favorable than a year ago and are either above or near the average, reports Production and Marketing Administration.

On the basis of available supplies of oilseeds and the indicated output of mill by-product feeds, supplies of feedstuffs for 1948-49 are estimated at around 15½ million tons, about the same as for 1947-48 but slightly below the record supply for 1946-47. Based on livestock numbers on farms January 1, the December pig crop report and other data, the number of grain con-

suming animal units to be fed during the 1948-49 season is estimated at 158 million. This compares with 154.6 million in 1947, 177.6 million the 1942-46 average and 143.6 million the 1935-39 average. On the basis of these numbers, there are 194 pounds of feedstuff per animal unit this season compared with 199 pounds last season, 171 pounds the 1942-46 average and 142 pounds the 1935-39 average.

Supplies of oilseed meals 1948-49 estimated at around 6.5 million tons will be the largest of record despite large exports of soybeans and flaxseed. Supplies for the first quarter at 2.2 million tons were 15 percent above last year, the previous record. Cottonseed meal supplies at 927,000 tons, October-December 1948, were 137,300 tons above the same months of 1947 while soybean meal supplies at 1,063,400 tons were nearly 150,000 tons larger. Linseed and peanut meal supplies the first quarter increased 11,400 and 6,100 tons respectively over the same period a year earlier while copra meal supplies decreased 13,300 tons. Tankage, meat scraps, and fish meal supplies October-December 1948, were 5 percent above the same period of 1947.

• FATS DECONTROLLED. Secretary of Commerce Charles Sawyer announced Feb. 10 that, effective immediately, validated licenses will not be required to export any fats and oils and oil bearing seeds to destinations outside the Group "R" countries of Europe and adjacent areas. Commerce officials emphasized that the validated licenses are still required for shipments to the Group "R" countries.

The action was the latest of a series of steps relaxing controls on fats and oils. Export controls on inedible fats and oils were removed on Feb. 7.

Feb. 10 the International Emergency Food Committee, of which the United States is a member, agreed that fats and oils should be removed from a system of world allocation.

The decision of the IEFC made practical the action of the Department of Commerce, which authorizes the shipment of all fats and oils to all parts of the world, except the Group "R" countries, without obtaining validated licenses.

• 1949 ACREAGE GOAL. National production goal for soybeans was announced Feb. 18 by Secretary of Agriculture Charles F. Brannan.

The national goal for soybeans is 10,314,000 acres, the same as the 1948 harvested acreage and slightly below the 1943-47 average. With a yield equal to the average of the past 5 years—18.8 bushels per acre, the goal acreage would result in a production of 194 million bushels. Total production in 1948 was estimated at a record 220 million bushels.

Requirements for soybeans for beans are expected to continue large. Production of soybeans should be maintained at a high level. In recommending the goal to farmers, however, the Department points out that soils in some sections of the Cornbelt, where soybeans or corn have been grown continuously for several years, show deterioration from a depletion of humus. This condition calls for a return to better balanced rotations, including green manure and sod crops.

• SOYBEAN OIL USAGE. Factory production of crude soybean oil in December totaled 160,055,000 lbs. compared with 154,757,000 lbs. in November, reports Bureau of the Census. Production of refined soy-

bean oil totaled 110,908,000 lbs. in December; 116,910,000 lbs. in November.

Factory consumption of crude soybean oil was 119,822,000 lbs. in December; in November 126,686,000 lbs. Consumption of the refined oil was 97,934,000 lbs. in December; in November 98,468,000 lbs.

Factory and warehouse stocks Dec. 31 totaled: crude, 101,075,000 lbs.; refined, 86,576,000 lbs. This compares with Nov. 30 stocks of 77,432,000 lbs. of crude oil; and 69,216,000 lbs. of refined oil.

• SOYBEAN INSPECTIONS. Inspected receipts of soybeans in January were of somewhat better quality than those for the preceding month, according to reports to the Department of Agriculture. Sixty-eight percent of the January inspections graded No. 2 or better compared with 61 percent in December. However, only 73 percent graded No. 2 or better for October through January, compared with 86 percent last year, largely because of high moisture earlier this season.

January inspections totaled 5,721 cars compared with 6,265 cars in December and 4,300 cars the January average for the crop years 1942-1946. Inspected receipts for October through January were 63,688 cars compared with 57,895 cars for the same months last season.

Inspections of soybeans in January included the equivalent of 284 cars inspected as cargo lots and truck receipts equal to about 90 cars.

• SOYBEAN STOCKS. Production and Marketing Administrations' commercial grain stock reports for Jan. 31-Feb. 23.

U. S. GRAIN IN STORE AND AFLOAT AT DOMESTIC MARKETS (1,000 bu.)

	Jan. 31	Feb. 7	Feb. 15	Feb. 23
Atlantic Coast	931	1,004	1,108	639
Gulf Coast	487	262	324	638
Northwestern and Upper Lake	1,026	997	948	904
Lower Lake	5,107	4,586	4,097	3,945
East Central	2,695	2,588	2,388	2,258
West Central Southwestern & Western	1,995	1,809	1,833	1,514
Total current week	12,241	11,246	10,698	9,898
Total year ago	11,784	11,386	10,507	10,661

U. S. BONDED GRAIN IN STORE AND AFLOAT AT CANADIAN MARKETS (1,000 bu.)

Total current week	2	0	0	0

• SOYBEAN GLUE. Consumption of soybean glue by the plywood industry in December was 2,769,000 lbs. compared with 2,880,000 lbs. in November, and 1,965,000 lbs. in December of 1947.

Consumption of phenolic resin glue was 2,027,000 lbs. in December compared with 2,888,000 lbs. in November, and 3,433,000 lbs. in December of 1947.

Total consumption of all glues by the plywood industry in December was 5,632,000 lbs., compared with 6,672,000 lbs. in November, and 6,103,000 lbs. in December of 1947.

Stocks of soybean glue totaled 1,406,000 lbs. Dec. 31 compared with 1,854,000 lbs. Nov. 30 and 1,427,000 lbs. Dec. 31, 1947.

• SHORTENING SHIPMENTS. Reported by members of the Institute of Shortening and Edible Oils, Inc., in pounds.

Week ending Feb. 5 5,289,856
Week ending Feb. 12 4,660,978
Week ending Feb. 19 4,783,839

Grand total of shortening and edible oils shipments for January was 218,476,000 lbs.

LETTERS

BAE STOCKS REPORT

TO THE EDITOR:

Your feeling and that of others of the soybean industry in regard to the January 1, 1949 soybean stocks report is readily understandable, since the crushings exceeded the total disappearance for the period. Reconciling the crushings and other known disappearance with the total disappearance of soybeans by quarterly periods has long been a difficult problem. We have had situations several times in past years in which particular quarters have been out of line, but these have usually cleared before the end of the season.

The apparent discrepancy this quarter could arise from one or more of several sources. The October 1 carry-in stocks of old soybeans could be low, as it was extremely difficult this year to separate the old from the new beans because of the early movement to market. The preliminary 1948 production could also be low, although we have no evidence at this time to support that assumption. The January 1 farm stocks could be too high.

A new complication arose this quarter due to the C. C. C. soybean loan and purchase agreement programs. It is possible that some farmers may have been confused on how to report such beans although they were asked to report only those stored on the farm. Since the off-farm stocks data are gathered from several sources the actual date of reporting stocks may vary.

There is also a possibility of some duplication between stocks reported by the terminal elevators to PMA and the processing plants as reported to the Bureau of the Census, although every effort has been made to avoid this situation.

At the time the January 1 soybean stocks was assembled by this agency we were seriously concerned over the apparent discrepancy. However, after checking the figures carefully we had no alternative but to publish the data as compiled by the various agencies. We have no evidence as yet to substantiate any change in the report as published.

The next soybean stocks report

will be released April 29 relating to stocks as of April 1. We hope by that time the apparent discrepancy will be cleared up.—*W. F. Callander, assistant chief, Bureau of Agricultural Economics, Washington, D. C.*

Mr. Callander's letter was in response to a letter by the editor to Bureau of Agricultural Economics questioning the Jan. 1 soybean-stocks report. (See page 45, February issue).—Editor.

WHO SETS THE PRICE?

To the Editor:

This is in reply to "Who Sets the Price" that appeared in your last issue.

Before entering the cotton and grain business I was connected with the buying department of one of the larger processors of soybeans. At no time did they ever withhold any of their products from the market. As a matter of fact I don't imagine there is any processor in the country that has enough storage to store over 10 days production of their oil or meal.

Our friend should glance at the oil markets and the meal markets to base his price on soybeans as that is what they have to buy their beans on, what they can get out of that 9 pounds of oil and 48 pounds of meal. The processors did mighty well this year paying the prices they did for beans. They are certainly facing a loss every day now with the oil and meal market where it is.

Your foreign edible oils entering the USA are the big depressing factor now in the bean market. The Chicago bean market is not a criterion of the real value of soybeans. At times it is, but rarely.

I grant you that we do need more storage space if we are to have an equitable loan price on soybeans, and if we have it on corn, wheat and cotton, we certainly should have it on beans.

Let's not criticise the processors too much however. They have more than their share of headaches now. Supply and demand is the determining factor of all prices. We had best have our own houses in order because we are rapidly approaching the time when each and every product will sell on its merit rather than artificial supports.—*W. H. Haslauer, manager Farmers' Cotton & Grain Co., East Prairie, Mo.*

Dear Mr. Ratliff:

I read you letter with interest and allow me to say I had no idea our industry was such a perfect paradise as you describe.

With such radical fluctuation as you describe in your letter no board of directors would allow soybean buyers to gamble the way you suggest.

The amount of beans the farmer throws onto the market forces the industry in turn to find similar outlets for meal and oil. The more the farmer sells the more attractive the prices of oil and meal must be. Therefore, the farmer appears to push his own market down.

The government provides you with the most beautiful hedge in which you could seal your beans at $2.18. If the market goes down the government owns them, and if the market goes up you buy the beans back from the government at $2.18 and pocket the profit. Out of 220 million bushels of beans 10 million were sealed and put under purchase agreement. It looks to me as though you farmers are the gamblers and not the industry as you suggest.

In Chicago the other day there were 75 cars of corn all with 20 percent moisture or less that sold at 45c per bushel under what the farmer could seal his corn for. No wonder you are confused, everybody else is.—*Clive F. Marshall, president Honeymead Products Co., Mankato, Minn.*

To the Editor:

I read one of these letters about a farmer saying the price of beans is lower at harvest time. Right now these beans are lower than they were at that time.

We store all the beans the farmers want to store here. When we were paying $2.65 for beans they wanted $3.00. Now they would sell for support price if they could get it.

At harvest time we take in around 120,000 bushels of beans and most of them are stored.

We sent out cards so they would get purchase agreements on them and they all thought beans would not get that cheap. Now they would like to have them protected.—*Alva Froehlich, managers Farmers Cooperative Co., Cleghorn, Iowa.*

Above letters were written in response to the letter by William C. Ratliff, Bluffton, Ind., in which he stated, "Processors control the price." It appeared on page 50 of the February issue.—Editor.

This little ASA booster needs a name. What shall we call him? See letters below.

"THE LITTLE MAN"

To the Editor:

Name the little guy in the corner MR. ASAB (long first A) standing for American Soybean Association Booster.—*Wm. G. Eichar, 14 Dime Annex Bldg., Fort Wayne 2, Ind.*

To the Editor:

Name him "Sir Soy."—*Henry E. Gross, chemical engineer, Wurster & Sanger, Inc., Chicago 15, Ill.*

To the Editor:

I would suggest the name of "Gus Soya" for the little man in the cartoon.

"Gus" Staley was the first man to promote and process the soybean in the United States.—*A. H. Harris, engineering office manager, A. E. Staley Manufacturing Co., Decatur Ill.*

To the Editor:

If I am not too late, I would like to suggest a name for "The Little Man" in the cartoon on page 6, and my reasons for the suggestion.

Let's call him "Sing Soy." That name sounds Oriental—which is where the bean came from to America. It is euphonious—easy to speak and sounds good. The name's connotation is good—Oriental origin and something we can sing and shout about. And as Ma says to Pa in the cartoon, it makes sense.—*W. O. Brown, Prattville, Ala.*

To the Editor:

Re the "little man." Why not name him "Silas Soybean?"—*W. S. Banes, Phillips Petroleum Co., Bartlesville, Okla.*

See the little character in action in the cartoon on page 6. The boss says we must christen him in April. Please help us out.—Editor.

A typical gas compressor installation at one of the many Phillips processing plants

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